an average of 5.1 times, underwent 35 cycles of either intracytoplasmic sperm injection (ICSI) or standard in-vitro fertilization (IVF). Embryo transfer on days 2–3 of development was performed in all cycles and supernumerary embryos were further cultured in a cell-free culture system. Whenever blastocysts were developed, they were transferred at a second transfer 2–3 days following the first transfer.

Results: A total of 202 transferable embryos were obtained, of which 81 were transferred on days 2–3 of embryonic development in all treatment cycles (mean of 2.3 embryos per transfer). A total of 121 embryos were further cultured of which 36 embryos (27.9%) reached the stages of early, expanded or hatching blastocysts on days 5–7. In 19 cycles (group A), 24 blastocysts were transferred 2–3 days following the first transfer (mean of 1.3 blastocysts per transfer). In 16 cycles (group B), no blastocysts were available for transfer and thus a second transfer was not performed. Higher pregnancy and implantation rates were obtained in group A (42% and 20.3%) as compared to group B (25% and 11.1%) respectively.

Conclusion: Our results demonstrate the beneficial effect of a double embryo transfer in cases of repeated implantation failure. The observation that a relatively high pregnancy rate was obtained in cases of a failure to achieve blastocyst development indicates that in-vitro selection for embryonic development may not always reflect in-vivo selection criteria. Performing a double embryo transfer of both cleavage stage as well as blastocysts provides the advantages of both environments for the selection of embryos possessing the potential for a complete embryonic development.

P-097. Luteinizing hormone urinary test is an efficient and cost-effective method to monitor ovulation for the transfer of cryopreserved embryos in natural cycles

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Introduction: There is a need for the clinician to provide his patients with the most efficient treatment, in terms of take home baby rate, cost per initiated cycle and respect for ethical and legal issues. In Switzerland, the selection at the embryo stage is no longer allowed, necessitating freezing at the zygote stage. The maximum number of embryos transferred is legally limited to three. Moreover, to decrease the number of multiple pregnancies, only two embryos are generally transferred when the patients are <35 years old. Consequently, more zygotes are cryopreserved per oocyte retrieval, and more transfer cycles are needed to replace these cryopreserved zygotes, with an increase of the overall cost of the treatment. The aim of this retrospective study was to compare luteinizing hormone (LH) urinary test, a low cost ovulation monitoring method, with the standard approach measuring plasma LH, progesterone and oestradiol levels, for the transfer of cryopreserved zygotes in natural cycles.

Materials and methods: Zygotes were frozen with the slow protocol using 1.5 M propanediol and 0.1 M sucrose in human tubal fluid medium containing SSR-2 (Medicult) and 0.5% human serum albumin. Zygotes were thawed 24–26 h before transfer. The embryo transfer was performed 3 days after the LH surge monitored using two different methods: a twice daily urinary test performed in the morning (INTEX-Ovulationstest; INTEX Pharmazeutische Produkte AG, Muttenz, Switzerland), or a plasma determination of LH, progesterone and oestradiol. All the patients using the urinary test received a short oral instruction and were asked to call the Unit on the day of the LH surge. In the event of a problem (difficulties in interpreting the LH urinary tests, ovulation delay, etc.), they were invited to come to the Unit for complementary blood testing. A plasma pregnancy test (human chorionic gonadotrophin) was performed 14 days after embryo transfer and clinical pregnancy was diagnosed 28 or 35 days after embryo transfer using an ultrasound examination (cardiac activity observation).

Results: From January 1996 to December 1998, 314 spontaneously ovulating patients (21–45 years old) underwent 544 thawed embryo transfers using natural cycles. Blood test monitoring was used for 390 cycles (group A, 220 patients), whereas urinary testing was used for 121 cycles (group B, 81 patients). For 33 cycles, the urinary testing was problematic and blood testing was used to confirm or determine the ovulation (group C, 31 patients). The mean number of blood tests was 3 for group A and 1.5 for group C. The mean age of the patients, the mean number of transferred embryos and the mean embryo score were the same in the three groups. The percentage of eggs originating from intracytoplasmic sperm injection cycles (~50%) was similar for the three groups. The pregnancy rate per embryo transfer was 16% for group A, 18% for group B and 27% for group C (not significant) with an implantation rate of 9.3%, 9.8% and 19.7% ($P < 0.03$) respectively. The mean cost for a cycle in group B was around 40% lower than in group A (740 versus 1200 FRS), for a similar rate of success. The cost in group C was intermediate.

Conclusion: These data clearly show that most of the spontaneously ovulating patients can monitor their LH surge at home using a low cost urinary test after adequate oral instruction. In the event of a problem, blood testing can still be performed, and, in almost every case, the ovulation can be confirmed or determined and the embryo transferred. The use of a urinary test is efficient in terms of pregnancy and implantation rates and cost-effective, as an important economy can be achieved for each thawed transfer cycle. Following this retrospective analysis, the actual policy of the Unit is to propose the urinary test to all the patients presenting suitable ovulation characterized during the pre-in-vitro fertilization control cycle.

P-098. Change of embryo transfer strategy improves in-vitro fertilization–embryo transfer outcome

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Introduction: In-vitro fertilization (IVF) attempts are frequently unsuccessful because embryos placed into the uterus