

Low Success Rate of ART, an Illusion, a Reality or Simply a Too High Expectation?

Assisted reproductive technologies have spread worldwide to help infertile couples but access to these advanced treatments is of varying degrees in different countries. Access to infertility treatment is very limited and insurance coverage of these treatments is insufficient in developing, underdeveloped and low-income countries.

From birth of the first IVF baby in 1978, procedures of diagnosis and treatment of infertility have been improving and they have revolutionized infertility treatment in such a way that even infertile men without mature sperm in their semen could conceive a child by retrieving a few numbers of sperm from their testicular tissue. In comparison to most other surgical and medical treatments, success rate of assisted reproductive technologies are low and consequently, successful pregnancies and take home babies require several bouts of treatment. Since these treatments are highly expensive and time-consuming, their repetition is not affordable for most infertile couples. Therefore, infertile couples' growing discontent with low success rates of infertility treatments and their search for IVF centers with higher IVF success rates and new technologies or treatment options seem to be reasonable reactions.

Over the past three decades of successful assisted reproductive practices, scientists and physicians have tried to improve infertility diagnosis and increase its successful treatment. An important part of these findings has been the production of new instruments to support the best environment for in vitro cultures and maturation of embryos and gametes. Another part of these efforts has focused on the preparation of infertile couples to produce adequate numbers of high quality sperm and oocytes and it has engaged in producing the best quality embryos and preparing the endometrium for their successful implantation. Overall, these efforts and progress have changed the situation so favorably that the clinical pregnancy rate of each treatment cycle has increased up to 60% (1).

In fact, whether future research on ovarian stimulating drugs and protocols, fertilization and culture methods, culture media, endometrium preparation, embryo selection, embryo transfer and luteal phase support could increase ART outcomes more than the present ones is yet to be determined. In other words, whether the success rate of infertility treatment could be greater than the ones from natural fecundation is still a goal to be set for future investigations. The estimated natural fecundity rate is about 20% per month and the rates of pregnancy for those who try to conceive naturally will be 45%, 65% and 85% following 3, 6, and 12 cycles, respectively (2).

According to the results of a study published in the New England Journal of Medicine recently, live birth rates from ART can approach those of natural fecundity in the general population, as long as the couple and embryo criteria are favorable and there are no contraindications for treatment continuation. However, financial limitations, environmental stresses and repeated implantation failures in the first two or three cycles or implication of other factors reduce live birth rates from ART dramatically. The researchers from the same study found the conservative and optimal estimates of cumulative live-birth rates to be, respectively, 42.7% and 65.3% for transfer of cleavage embryos and 52.4% and 80.7% for transfer of blastocyst from fresh autologous oocytes in three consecutive ART cycles. However, success rates are lower in older women than younger candidates when their own oocytes are used, but these rates could increase similar to younger women if donated oocytes are used instead (3).

According to the above results, cumulative live-birth rates from ART is equal to natural fecundity rates at present but scientists believe that ART success rates could be increased by optimizing the above mentioned ART variables. Optimally, ART will be able to overcome other biological barriers of pregnancy such as pregnancy in postmenopausal women.

References

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