

## ART Strategy for Treatment of Recurrent Pregnancy Loss: Isn't It Better to Forget?

Recurrent pregnancy loss (RPL), recurrent miscarriage or habitual abortion is a multifactorial problem with exasperating and challenging aspects in reproductive medicine. It is defined as two or more consecutive loss of clinical pregnancies. However, the incidence of RPL is less than 5% in pregnant women but its etiology is diverse and varied and also for more than 50% of cases is not clearly defined (1).

RPL is a challenging disorder in diagnosis and treatment for clinicians and a stressful problem with the psychological burden on the couples. RPL is a distressing incident. Occurrence of this traumatic experience leads to emotional distress such as anxiety, depression and indignation in most of these women. The psychological burden on the physicians and couples leads to massive efforts in any possible way for a successful pregnancy followed by a successful and healthy live birth. Therefore, one of alternative treatment options suggested by physicians or requested by the couples is assisted reproductive technology (ART). Now the question is whether ART has any position in the treatment of these couples? Whether it can increase their chances for having a live birth or it can decrease their waiting time for a successful pregnancy?

The literature review on ART and RPL revealed that ART is not very efficient for having a live birth compared to expectant management. However, all of the studies used ART for couples with approved chromosomal abnormalities as the cause of RPL and also for women diagnosed with unexplained RPL. In these cases, ART with PGS is used for selection of embryos free of chromosomal anomalies. In spite of the wide application of PGS and ART in treatment of RPL, its clinical outcomes and cost-effectiveness in the procedures are unclear (2).

The first generation of PGS method was FISH-based screening on blastomeres of cleavage-stage embryos. FISH-based procedure for screening aneuploid embryos has a significant rate of misdiagnosis and also in vitro fertilized embryos have high level of mosaicism, therefore many of the euploid embryos are misdiagnosed with aneuploid. Several randomized controlled trials on RPL showed that FISH-based PGS cannot improve the live birth rate. The second generation of PGS includes more accurate methods such as CGH-microarray, SNP microarray and NGS which significantly improve the efficiency and efficacy of screening for genetic anomalies. Despite serious improvement in ART and PGS procedures, the new generation of PGS also cannot increase live birth rate in comparison with expectant management as a standard treatment of RPL (3).

ART-PGS is an expensive strategy for reducing repeated miscarriages without improvement in the chance of live birth rate. A large number of PGS cycles failed to lead to embryo transfer due to failure of finding euploid embryos. According to studies' results, live birth rate of IVF/PGS cycles is about 50%; however, live-birth rate of expectant management is about 70% over time, while the IVF/PGS approach is 100-fold more expensive than expectant management (4).

Therefore, if ART-PGS was the first choice for reducing the waiting time for the birth of a living child, its success rate would be higher than 90%. Therefore, it will have the priority over expectant management for treatment of RPL. Unfortunately, despite all improvements and efforts, the method is not very successful. So, until achieving this level of success rate, ART-PGS should be suggested for RPL with more precaution. In addition, appropriate counseling of couples regarding the conditions, success rate and cost of ART-PGS will help them to choose the method with more awareness.

### References

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