

Mini-Symposium on Evidence-Based Assisted Reproductive Technology

Preface

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Evidence-based evaluation of treatment is an important component of an effective and satisfying clinical practice. Evidence-based medicine (EBM) is “the process of systematically finding, appraising, and using contemporaneous research findings as the basis for clinical decisions”. Only a randomized control trial (RCT) is able to evaluate the accuracy of a medical treatment. To establish a well-organized guideline for treatment, evidence-based information based on RCTs is required.

In the category of assisted reproductive technology (ART), various treatments, including IVF-ET, ICSI-ET, and embryo cryopreservation, have been developed. As a guideline for ART has not yet been established in Japan, numerous methods for each procedure have been used in most institutions. Therefore, it seems very difficult for clinicians and embryologists to decide which method is valid and safe for each infertile couple, as well as for the offspring. Moreover, it is also difficult to compare the clinical data between the different institutions.

The procedure of ART consists of clinical management of patients, such as controlled ovarian stimulation (COS), oocyte aspiration under anesthesia, and embryo transfer. Gamete and embryo manipulation in the laboratory are the key to the success of ART. To avoid multiple pregnancy and ovarian hyperstimulation syndrome, the embryo cryopreservation methods have been improved.

In this mini-symposium, five related topics, including 3 clinical and 2 laboratory topics, were selected. Each specialist will express their evidence-based knowledge and technique in regard to ART.

Dr. Kubo will systematically review the relevant clinical data of recombinant FSH for COS on ART. He

will show that the use of rFSH is safe and useful when compared with uFSH, and that rFSH is a new treatment option for Japanese women undergoing COS for ART.

Dr. Kyono will discuss evidence-based oocyte aspiration and embryo transfer. He will recommend Color Doppler ultrasonography-guided oocyte retrieval to decrease blood loss. Pregnancy rate after ET depends on various factors, including embryo quality, endometrial receptivity, and the ET technique itself. Within these, relatively important factors for successful ET, which is the final and most crucial step in ART, will also be discussed.

As an anesthesiologist, Dr. Terui will present a variety of anesthetic methods for ART. He will recommend safe, rapid recovery anesthetic management for ART because anesthetic agents are gradually transferred into the follicular fluid, and may interfere with reproductive physiology *in vitro*.

Dr. Kaneko will discuss human sperm processing in ART. For ICSI, selection of sperm for injection has been based on sperm motility and morphology. However, he will show the significance of DNA integrity for quality assurance of human sperm.

Dr. Kuwayama will review the development of cryopreservation of mammalian embryos and its application to human ART programs. He will show a high survival rate of human embryos, regardless of the pronucleus, cleavage, and blastocyst stages, after a vitrification method, using the CryoTop method.

I hope this mini-symposium will be useful for clinicians and embryologists to understand the recent evidence for each procedure in ART. Further advancement of evidence-based ART is required to make it helpful for infertile couples treated by ART.