

Anesthesia for ART Procedures

In Vitro Fertilization (IVF) is increasingly being practiced in different parts of the world. Anesthesiologists are faced with peculiar challenges to follow an anesthetic technique that allays patient anxiety with adequate pain relief and yet avoiding any deleterious effect on outcome of successful pregnancy.

Variety of anesthetic techniques have been used. No method could be considered as superior to other techniques if basic concepts pertaining to IVF are taken care of.

The aim of each individual involved in IVF varies. The patient wants comfort and safety and the gynecologist's aim is to harvest maximum oocytes and anesthesiologists try to use drugs which are short acting, minimal side effects to oocyte and little penetration into follicle.

Anesthesia to IVF procedures

A specialized subspecialty because subtle differences affect fertility rates and vigilant to the impact of anesthetic agents on success of assisted conception.

Common ART procedures need Anesthesia

Oocyte Retrieval
Embryo Transfer
Testicular Biopsy

Goal of the Anesthetist

Minimal impact on embryogenesis, fertilizations and cleavage of oocyte.
Minimal postoperative vomiting, sedation and pain.
No psychomotor impairment so that improvement in fertility rates are achieved.

Physiological changes in ART patients

Albumin and alpha 1 acid glycoprotein decrease with hormonal manipulation which results in decrease in drug binding and greater concentration of free drug. There are changes in plasma estradiol levels and estrogen levels result in increased emesis. Selection of drugs, doses, combinations and timing of exposure alter results.

Oocyte Retrieval

In early period oocyte retrieval was done with laparoscopy. CO₂ pneumoperitoneum decreases follicular fluid pH and oocyte fertilization rates. Hence that practice was abandoned. Now only transvaginal aspiration using ultrasound guidance has been practiced.

Anesthetic Technique in Oocyte Retrieval

Paracervical block
Spinal / Epidural Anesthesia
General Anesthesia
– TIVA
– with inhalational agents
Conscious Sedation

Paracervical Block

It is a cumbersome procedure needs patient cooperation. Blocks cover only the vaginal and not ovarian wall. Always combined with sedation – pethidine IM / IV

Spinal / Epidural

Has long recovery time so not ideal for day care procedures. Strict hemodynamic monitoring needed. Many times technical difficulties to perform. Common combination is lidocaine with fentanyl. Not routinely practiced nowadays.

Conscious Sedation

Needs patient's cooperation, most of the patients are very anxious and psychologically depressed. Conscious sedation allows the patient to move at critical times. Dose required may involve loss of consciousness which may result in prolonged recovery and room stay.

Technique of Choice

General Anesthesia – total intravenous anesthesia with propofol (Titrated), fentanyl (50-100 µg) with midazolam 1-2mg with spontaneous / assisted mask ventilation via high flow oxygen mask.

Anesthesia for Embryo Transfer

Many centers are doing ET without anesthesia. Some of the patients are very anxious and non cooperative. They need general anesthesia – TIVA.

Anesthesia for Testicular Biopsy

Ideal technique will be cord block using 1% xylocaine plain or 0.25% sensorcaine.

Criteria for Discharge

Most of the procedures are done as day care. Before discharge patient must be hemodynamically stable, able to take and retain oral liquids, ambulate and void urine prior to discharge.

Conclusion

The impact of anesthetic agent on gametes need to be continuously revisited. Anesthesiologist should be vigilant to the potential impact of anesthetic agent on the success of ART as subtle difference will affect fertility rates.