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Opinion

My Experience in OPU (Oocyte Retrieval cases) of Giving Aanesthesia in Over 5000 Patients

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Assisted reproductive technologies or in vitro fertilization (IVF) was developed primarily for couples with infertility issues to maximize the possibility of a viable pregnancy. During IVF (transvaginal) follicular aspiration or retrieval (TVOR) and oocyte retrieval is among the most delicate technically.

Anesthesia/analgesia for the oocyte retrieval procedure is required, but should be of minimal duration so as preclude impacting optimal oocyte and embryo quality. Early experience with general anesthesia, in particular nitrous oxide, appeared to be correlated with adverse effects on rates of pregnancy and livebirths. A decade later, propofol and fentanil were recommended as acceptable options, preferably by intravenous administration. A relatively recent meta analysis of studies regarding types of anesthesia for oocyte retrieval showed that conscious sedation was easy to administer and safe for the mother, as well as being the best option for preserving embryo quality; a combination of propofol, fentanyl, and midazolam has been popular.

I am hereby sharing my experience of giving anesthesia for over 5000 oocyte retrieval procedures.

The most common comorbidities found in women were hypothyroidism and obesity. As with any procedure, pre operative assessment is must. This will enable us to give the best relaxation and for minimal time so that there is negligible adverse effect of anesthetic drugs on the oocytes. I used to give TIVA to my patients. Oxygen plus sevoflurane can be given. Pre operative checklist includes:

- Rule out any medical history – Especially Diabetes, Hypertension, Hypothyrodism etc.
- Allergies to medicines and food
- Obesity assessment – High risk for difficult intubation, if required and airway assessment is the must.
- Number of follicles and ease of ovarian accessibility – longer will be the duration of anesthesia requirement
- MPC assessment of every patient – for assessment of sos intubation difficulties
- Blood thinners – most patients may be on aspirin etc.
- All investigations
- Fasting status
- Trigger injection time to be reconfirmed.

The most commonly used combination for anesthesia during oocyte retrieval was propofol plus fentanyl along with midazolam, glycopyrolate and pentazocine (and sometimes a fourth drug like lidocaine). The most commonly used analgesics for postprocedure pain in both groups were aqueous diclofenac and paracetamol, (but hardly any patient required it as fentanyl was given intraoperative as preemptive analgesia) None of the patients required intubation or had a significant respiratory event (pulse oximetry oxygen saturation < 95%). No patient required ventilatory support. The pain relief score was excellent in ketamine group (used in case of abdominal obesity or retracted lower jaw, where mask holding is little difficult) and with fentanil concentrations were significantly reduced. Postoperative nausea was less frequent as ondansetron was given postop in all patients. The addition of ketamine did not influence length of stay nor patient satisfaction.

Intra operatively oxygen by nasal prongs for 3 minutes should be given. Sedation with midazolam and glycopyrolate, fortwin,

propofol , fentanyl can be given. Sevoflurane has the advantage as it allows reduction of dose of other anesthetic agents. In case of women with abdominal breathing one can add ketamine and scoline, if required. Other useful instruments are use of nasal airway and oral airway to prevent tongue fall; even laryngeal mask were used if in prolonged cases where airway was predicted as a problem. Use of alcohol is strictly not allowed as it can damage the oocytes.

To summarise, there is no strong evidence to recommend the avoidance of any technique or drug for TVOR, including nitrous oxide or halogenated agents. Women should be offered any available technique. The evidence available up to date is not convincing enough to recommend avoiding any anesthetic technique in terms of pregnancy and birth rates.

TVOR is painful for women and different techniques may be used for pain relief in day case surgery. The other important outcome to consider is the pregnancy rate, and any anesthetic technique or drug which would improve this pregnancy rate should be recommended. Conscious sedation and general anesthesia proved to be well tolerated for woman and the oocytes, despite the use of propofol, opioids, benzodiazepines, nitrous oxide, or other drugs. Spinal anesthesia (preferred during Covid time where short acting local anesthetics were used. and paracervical block are also acceptable options, and can be combined with conscious sedation. Nevertheless, more studies are needed to find out the ideal drug or technique combination for the woman and the oocyte.