

Anesthesia Protocol for Urodynamic Studies and Voiding Cystourethrograms

Urodynamic Study (UDS)

Sedation/Anesthesia

- **Preoperative Sedation:** Avoid midazolam and other preoperative sedatives so as not to prolong emergence from the procedural sedation.
- **Monitoring:** ASA standard monitors
- **Positioning:** Supine, often “frog-legged.” Ensure patient comfort and prevent nerve compression.
- **Induction:**
 - Parent Present Induction can be allowed in certain instances at the discretion of the anesthesiologist.
 - Nitrous oxide for urinary catheter placement. If nitrous oxide is insufficient for catheter placement, judicious use of sevoflurane may be used at the discretion of the anesthesia team. PIV at the discretion of the anesthesiologist.
 - Once the urinary catheter is placed, turn off all anesthetic and ensure the patient begins to emerge safely and calmly.
 - If the patient is able to adequately participate in study, there are no further responsibilities for the anesthesia personnel aside from monitoring.
 - If the patient is uncooperative for the exam, he or she may need a small dose of propofol (e.g, 0.5 - 1 mg/kg) titrated to tolerate bladder distension. This allows for static radiologic imaging to be done. Once imaging is complete, the bladder can be drained and the urinary catheter removed.
- **Bladder Distension:** Monitor for vagal response (bradycardia, hypotension) during bladder filling.
- **Recovery:**
 - If the patient received only nitrous oxide, he or she may bypass Phase I recovery and be **discharged from Phase II after 15 minutes of recovery (vitals signs at zero and fifteen minutes)** if otherwise ready for discharge.
 - If the patient received sevoflurane and/or propofol, he or she must be taken to PACU for Phase I recovery, but can “fast-track” and bypass Phase II if he or she meets criteria.

Voiding Cystourethrogram (VCUG)

Sedation/Anesthesia

- **Preoperative Sedation:** Typically given oral midazolam for anxiety. (Some studies are able to be completed with only the midazolam.)
- **Monitoring:** ASA standard monitors
- **Positioning:** Supine, ensure patient comfort and prevent nerve compression.
- **Induction:**
 - Nitrous oxide, often in combination with sevoflurane, for foley catheter placement. PIV at the discretion of the anesthesiologist.
 - Once the urinary catheter is placed and the bladder is distended with contrast, stop administration of anesthetic to begin emergence. Minimizing the anesthetic only to that which is necessary for urinary catheter placement and
 - ***If the patient is uncooperative for the exam, he or she may need a small dose of propofol (e.g, 0.5 - 1 mg/kg) titrated to tolerate bladder distension. This allows for static radiologic imaging to be done.***
 - Parent Present Induction can be allowed in certain instances at the discretion of the anesthesiologist.
- **Bladder Distension:** Monitor for vagal response (bradycardia, hypotension) during bladder filling.
- **Recovery:**
 - If the patient received only nitrous oxide or midazolam, he or she may bypass Phase I recovery and be ***discharged from Phase II after 15 minutes of recovery (vitals signs at zero and fifteen minutes)*** if otherwise ready for discharge.
 - The patient will be taken to PACU for Phase I recovery, but can “fast-track” and bypass Phase II if he or she meets criteria.

Special Considerations

- **Contrast Administration:** Be aware of potential allergic reactions to iodinated contrast. Have emergency medications (e.g., epinephrine, diphenhydramine) readily available.
 - **Radiation Exposure:** Minimize exposure time.
 - **Temperature Regulation:** Especially important for infants and small children during prolonged procedures.
 - **Bladder Filling:** Monitor for discomfort and vagal responses.
 - **Voiding Phase:** Ensure the patient is able to void spontaneously for image acquisition.
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