

TURP Syndrome

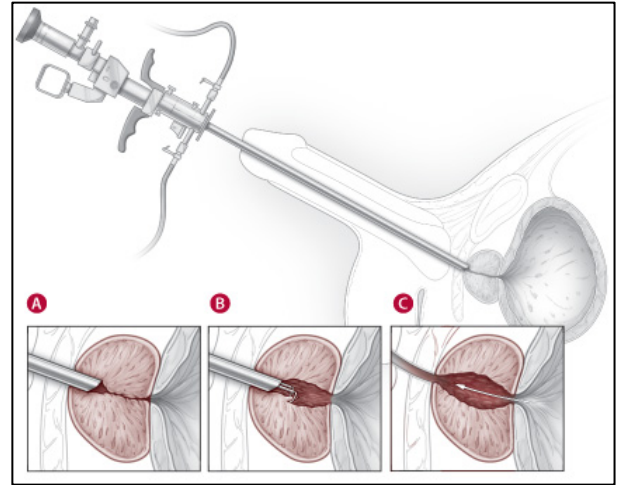
Anesthetic Pearls: Anesthetic Implications and Management of TURP Syndrome

TURP Syndrome is caused by excessive absorption of the irrigating fluid resulting in hyponatremia, cerebral edema, and volume overload. Symptoms may include: visual changes, restlessness/agitation, confusion, altered sensorium, seizure, coma, and CHF. Hypertension and bradycardia are frequently seen because of the acute hypervolemia.

The amount of irrigating fluid absorbed depends upon:

1. Hydrostatic pressure of the driving fluid into prostatic veins & sinuses.
2. Length of surgery (average 10 - 30 ml of fluid absorbed per minute of resection time).

Non-Electrolyte Solutions used for irrigation secondary to not dispersing the electrical coagulation current of the resectoscope (electrolyte containing solutions cause electrical current dispersion). Glycine and Cytal (mannitol & sorbitol) are the two most commonly used solutions.



TURP Syndrome is proposed to occur if hyponatremia is accompanied by hypo-osmolality. CNS signs and symptoms do not manifest themselves (usually) if the osmolality remains normal. Glycine and Cytal tend to retain near normal osmolality.

Glycine acts as an inhibitory transmitter in the brain stem, spinal cord and retina. Glycine induced blindness has been reported with extremely high plasma levels. Vision returns when plasma levels decrease (up to 12 hours). Glycine is biotransformed to ammonia which can cause decreased CNS function and delayed awakening after TURP.

Coagulopathy can occur after TURP (< 1%) due to systemic fibrinolysis caused by plasmin. The prostate releases plasminogen activator, which converts plasminogen into plasmin. Proposed that the fibrinolysis is secondary to DIC triggered by the systematic absorption of resected prostate tissue, which is rich in thromboplastin.

Regional Anesthesia is advantageous in that it allows for direct CNS monitoring of the patient (unless over-sedated), and treatment may be instituted earlier. Caution: symptoms of circulatory overload may be delayed because of the increased venous capacitance caused by the sympathetic block. When the block dissipates, venous capacitance acutely decreases and circulatory overload can occur post-op. Another advantage of regional anesthesia is that it allows for early recognition of bladder perforation IF the sensory block is no higher than T-10. Extraperitoneal perforation would cause periumbilical, inguinal, or suprapubic pain. Intraperitoneal perforation causes upper abdominal or referred shoulder pain.

Treatment of TURP syndrome consists of fluid restriction and loop diuretics (Furosemide, Bumetanide, Ethacrynic Acid, Torsemide). Hypertonic saline is rarely necessary and should be considered only in cases of severe hyponatremia.