

TURP Solutions: Blindness

During transurethral resection of the prostate (TURP) procedures, large volumes of irrigation fluid are instilled to assist with visualization and removal of tissue. Because the venous plexus of the prostate is opened during a TURP, large volumes of this fluid can be absorbed resulting in TURP syndrome. The amount of fluid absorbed will depend on the patient's central venous pressure, the length of the procedure, and the hydrostatic pressure (the height of the irrigation bag above the patient). The fluids tend to be hypotonic and do not have electrolytes in them (to minimize dispersion of the electrical away from the resectoscope). Given this, TURP syndrome can manifest with symptoms related to the volume overload and hyponatremia resulting from absorption of large volumes of hyponatremic fluid. Additionally, TURP syndrome's presentation can include additional symptoms if glycine is used as an irrigant:

Mannitol and sorbitol: Large volumes of this hypotonic, expensive, fluid will result in hypervolemia and hyponatremia. A rapid drop in sodium concentration may manifest symptoms sooner than a slower drop of a similar magnitude. Symptoms include: early hypertension, bradycardia, pulmonary edema, ECG changes, heart failure, late hypotension cerebral edema, confusion, coma, seizures.

Glycine: Glycine is an inhibitory neurotransmitter and can result in temporary retinal blindness. Glycine is then metabolized into ammonia which can result in ammonia toxicity manifesting as nausea, vomiting, and coma. As a hypotonic solution, glycine mediated TURP can also present with the symptoms listed under the mannitol and sorbitol section.

Further Reading: Hawary A, Mukhtar K, Sinclair A, Pearce I. Transurethral resection of the prostate syndrome: almost gone but not forgotten. *J Endourol.* 2009 Dec;23(12):2013-20. doi: 10.1089/end.2009.0129. PMID: 19821694.