**Randomized Trial Comparing the Safety and Clarity of Water Versus Saline Irrigant in Ureteroscopy**

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**Hypothesis**

- Sterile water irrigant will not increase postoperative hyponatremia compared to 0.9% saline and will provide superior visualization in ureteroscopy (URS)

**Introduction**

- AUA stone treatment guidelines recommend 0.9% saline in URS due to risks of using water irrigant in endoscopic procedures
- However, guideline evidence is weak
- A prospective study has indicated that fluid absorption in URS is minimal
- Water may provide better visualization

**Methods**

- In 2017, 121 adult patients undergoing URS at Emory University Hospital were prospectively randomized to receive sterile water or 0.9% saline irrigant
- Patients and surgeons blinded to fluid
- Pulsed irrigation used
- Pre-op and post-op serum sodium, osmolality, and temperature assessed
- Fluid clarity measured subjectively by surgeon visualization scores and objectively by turbidity analysis with a turbidimeter of renal fluid

**Results**

- Fewer post-op hyponatremia (Na ≤135 mEq/L) events in water group and no significant difference between groups
- No significant difference in change in serum sodium (pre-op → post-op) between groups
- No significant difference in post-op hypothermia incidence
- Surgeon visualization score significantly higher for water
- Measured turbidity significantly lower for water
- Multivariate analysis indicated that use of ureteral access sheath was not a confounding variable

**Conclusions**

- Water irrigant does not cause an increased incidence of hyponatremia or hypothermia in uncomplicated URS
- Water irrigant appears to provide clearer endoscopic visualization than saline and can be recommended for URS cases with suboptimal visualization