The urinary microbiome after radical cystectomy and urinary diversion

University of Southern California Institute of Urology and Norris Comprehensive Cancer Center, Los Angeles CA

Background
- Radical cystectomy (RC) and urinary diversion (UD) is a complex operation with associated morbidity.
- Recent studies have demonstrated the existence of a urinary microbiome which is thought to play a role in numerous disease states.
- Herein, we use 16S rRNA sequencing to characterize the microbiome of the reconstructed urinary tract of bladder cancer patients.

Methods
- A catheterized urine specimen from the native bladder and a swab of the ileal segment used to create the UD were collected in the operating room.
- We then collected sequential catheterized specimens from the UD until 2 months post-op.
- Antibiotic prophylaxis was administered according to our institutional ERAS protocol.
- Bacterial 16S rRNA sequencing and microbiome profiling were performed.

Results
- 20 patients enrolled, 8 with complete sample collection
- 17 (85%) male
- 13 (65%) ileal neobladder

Alpha Diversity

![Alpha Diversity Chart]

Conclusions
- The urinary microbiome immediately following UD shows alpha diversity similar to that of the native bladder and bowel, but this diversity decreases over time.
- Patients with infectious complications may have persistently higher alpha diversity despite prophylactic antibiotic use.
- Larger sample sizes are necessary to more completely characterize the urinary microbiome following UD.