

CONCLUSIONS: This study point toward the process of inoculation of bacteria during prostate biopsy using microbiome profiling, due to translocation of fecal bacteria in to the prostate changing the urinary microbiome of some patients.

Source of Funding: None.

MP15-14
THE VALUE OF NEXT GENERATION DNA SEQUENCING TESTING IN RECTAL SWABS BEFORE TRANSRECTAL PROSTATE BIOPSY FOR INDIVIDUAL AND TARGETED PROPHYLAXIS OF URINARY TRACT INFECTION

Vladimir Mouraviev, Davenport, FL; Michael W. McDonald, Celebration, FL; Colby Skinner, Orlando, FL; Srinivas Vourganti, Chicago, IL; David M. Albala, Syracuse, NY; Kurt Naber, Munich, Germany; Florian M. E. Wagenlehner, Giessen, Germany; Truls E. Bjerklund Johansen, Oslo, Norway*

INTRODUCTION AND OBJECTIVES: In spite of implementation new antibiotics, the rate of severe febrile urinary tract infection (UTI)/urosepsis after transrectal prostate biopsy remains unchanged over recent years at approximately 3% of all cases. Such complications require urgent hospitalization with intravenous antibiotic administration. An introduction of next generation sequencing (NGS) can allow us to analyze complete genomic profile of gut microbiota with detection of resistance genes to most frequently used antibiotics for empiric prophylaxis. The aim of our study was to evaluate NGS of rectal swabs in a pilot study in patients before transrectal biopsy of prostate aimed to prevent severe UTI.

METHODS: Between June 2017 and September 2017, 24 patients were entered into this study before scheduled prostate biopsy for elevated PSA or abnormal DRE or multiparametric MRI. Two types of molecular microbial diagnostic testing levels are performed. The Level 1 Panel, received within 24 hours, is a quantitative real-time Polymerase chain reaction (PCR) test for bacteria and fungi, and assessment of genetic factors conferring resistance to bacteria. The Level 2 test, received within 3-5 business days, detects virtually all microbial organisms and fungal pathogens that may be present in patient specimens based on the database of 25,000 species. The rectal swabs were processed by MicroGen DX, a CAP and CLIA certified lab in U.S.A. performing diagnostics via NGS. The determination of the bacterial species, including resistance genes targets, provides for a susceptibility determination that clinicians can adjust using local antibiograms and/or clinical references. Standard protocol for prevention of infection included levofloxacin 0.5 g orally and 1 gr. ceftriaxone intramuscularly before biopsy with adjustment for targeted prophylaxis for each case.

RESULTS: In all 24 patients multiple species were revealed with median 9 (range: 2-16). The predominant flora was found as Bacteroids (dorei, fragilis and vulgaris)- in 8 men, E.Coli in 7, Prevotella copri - in 2, Citrobacter (koseri and freudii)- in 2, and Corynebacterium striatum, Klebsiella pneumoniae, Campylobacter hominis, Fenollaria timonensis and Faecalibacterium prausnitzii in 1 patient, respectively. In 15 of 24 cases the multidrug resistance genes were detected, and 14 of those 15- to fluoroquinolones. It allowed us to change our empiric prophylaxis in 14 those patients to other antibiotic(s) instead of levofloxacin. In 8 cases the different fungal species were detected and 4 patients of them had a multi-fungal association that was an indication to add antifungal antibiotic as well. The targeted prophylaxis based on this information was efficient to avoid any infectious complications in 23 of 24 patients within 30 days after biopsy. Only one patient developed a subfebrile episode of UTI as an acute cystitis in 3 weeks after biopsy.

CONCLUSIONS: The NGS test allowed us to implement a truly individualized and targeted prophylaxis of UTI therapy in patients undergoing transrectal biopsy. Further upcoming phase II study is needed

to compare an efficacy of NGS vs. standard culture and sensitivity of rectal swabs.

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MP15-15
TARGETED ANTIMICROBIAL PROPHYLAXIS DOES NOT ALWAYS PREVENT SEPSIS AFTER TRANSRECTAL PROSTATE BIOPSY

Pengbo Jiang, Orange, CA; Michael Liss, San Antonio, TX; Richard Szabo, Irvine, CA*

INTRODUCTION AND OBJECTIVES: We compared the effectiveness of targeted prophylaxis (TP) to single agent empirical prophylaxis (SAEP) and augmented empirical prophylaxis (AEP) in preventing sepsis after transrectal prostate biopsy (TRPB).

METHODS: We retrospectively reviewed TRPB's performed over three years at 13 Southern California Kaiser Permanente Departments of Urology. For TP, rectal culture bacterial susceptibilities guided selection of a single prophylactic antibiotic while for empirical prophylaxis, one antibiotic (SAEP) or multiple antibiotics (AEP) were given according to the urologist's usual practice. The decision to institute TP, SAEP or AEP was left to the discretion of the individual urologist. Sepsis was the primary outcome analyzed.

RESULTS: 15,236 TRPB cases were reviewed. TP, SAEP and AEP were used in 26%, 58%, and 16% of cases, respectively. The overall incidence of post-biopsy sepsis was 0.64%. On sub-analysis, TP with ciprofloxacin had a significantly lower incidence of sepsis than SAEP with ciprofloxacin (0.3% vs. 0.79%, p=0.008) and AEP had a significantly lower incidence of sepsis than SAEP (0.3% vs. 0.78%, p=0.008) but the difference in sepsis between TP and AEP was not statistically significant (0.56% vs. 0.29%, p = 0.118). (see Figure 1) 29% of all the patients who became septic were given ciprofloxacin monotherapy yet still developed sepsis with ciprofloxacin-sensitive bacteria. The bacteria causing post-TRPB sepsis were sensitive to the antibiotic initially given as prophylaxis in 73%, 28% and 0% of cases that developed sepsis after TP, SAEP and AEP, respectively. (see Table 1)

CONCLUSIONS: This large retrospective study showed superiority of TP over SAEP when only ciprofloxacin was given. In addition, AEP was shown to be statistically superior to SAEP but not to TP. Importantly, a significant number of patients developed sepsis despite being given the correct prophylactic antibiotic.

Table 1

Antibiotic Sensitivity of Bacteria Causing Sepsis in Relation to the Antimicrobial That Was Given for Prophylaxis

Bacteria Causing Sepsis	Type of Prophylaxis			Total	P value of TP to SAEP
	TP	SAEP	AEP		
Sensitive to antibiotic given as Prophylaxis	16/22* (73%)	19/69 (28%)	0/7 (0%)	35/98 (36%)	0.02
Resistant to antibiotic given as Prophylaxis	4/22 (18%)	42/69 (61%)	7/7 (100%)	53/98 (64%)	0.03
Unknown	2/22 (9%)	8/69 (12%)	0/7 (0%)	10/98 (10%)	

*9 given ciprofloxacin for TP
 7 given another monotherapy for TP