Detection of Bacteria by Next Generation Sequencing in Men with Chronic Prostatitis/Chronic Pelvic Pain Syndrome: Incidence, Correlation to Conventional Culture and Impact on Symptoms

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BACKGROUND / RATIONALE

- Chronic prostatitis/Chronic pelvic pain syndrome (CPPS) shares clinical features with UTIs and some patients improve with antibiotics.
- Traditional urine and expressed prostatic secretions (EPS) cultures often fail to identify an organism.
- Next-generation sequencing (NGS) analyzes microbial DNA and identifies organisms that fail to grow in traditional cultures.
- We sought to compare traditional cultures with NGS in men with CPPS and examine treatment response.

METHODS

- 25 men with CPPS underwent both traditional cultures and NGS of urine and EPS.
- NIH-Chronic Prostatitis Symptom Index (NIH-CPSI) and UPOINT domains were evaluated.
- Patients with negative traditional cultures and positive NGS were offered antibiotic therapy.
- Student's T-test was used to compare mean NIH-CPSI scores between groups

- found a pathogen missed by culture in 50%.
- The presence of vaginal flora, anaerobes, and yeast is novel but whether these are pathogens causing clinical symptoms is unclear and the value of prolonged antimicrobial treatment is not proven.
- NGS may help identify pathogenic organisms in men with CPPS whose symptoms suggest true infection, however men should still be offered multimodal therapy based on their clinical phenotype to maximize symptom resolution.

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- (p=0.44).
- identified.

CONCLUSIONS

NGS detected a variety of microorganisms not found by conventional urine and EPS cultures. In men with symptoms suggestive of infection, NGS



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RESULTS

 Urine cultures were negative in all CPPS patients, while 8% (2/25) had a positive EPS culture NGS identified these organisms in one patient and failed to detect it in the other.

In traditional culture negative patients, NGS identified an organism in EPS in 70% (16/23), though only 30% (7/23) were uropathogens. Patients with positive and negative NGS had similar mean NIH-CPSI scores

Organisms of questionable pathogenicity found by NGS included vaginal flora (*Prevotella* spp.), anaerobes, and fungi. See Table 1 for all organisms

In 6/25 (24%) men with symptoms suggestive of infection, all had negative EPS cultures but NGS identified a uropathogen in 50% (3/6). 4 were treated with antibiotics based on the sensitivity gene panel but only 1 patient (25%) resolved his symptoms.

Table

Genera

Streptoco Enteroco Staphylo Coryneba Prevotell Cutibacte Escheric Actinomy Klebsiella Lactobac Sphingor Acidovor Anaeroco Brevundi Campylol Clostridiu Dialister Finegold Gemella Methylob Moraxella Morgane Neisseria Pelomon Peptonip Phenylob Porphyro Propionir Sneathia Veillonell Aerococo Anoxyba Aureobas Caenimo Candida Cladospo Cryptoco Endobac Haemoph Microbac Ralstonia Stenotrop Ureaplas

e 1: Most frequent genera	detected by	NGS in the
urine and EPS of men w	vith CPPS (N=	=25)

	Urine (%)	EPS (%)
occus	28.0	20.0
occus	20.0	4.0
COCCUS	20.0	24.0
acterium	16.0	12.0
a sp	16.0	12.0
erium	12.0	4.0
hia	12.0	4.0
/ces	8.0	0.0
a	8.0	4.0
cillus	8.0	8.0
nonas	8.0	0.0
ax	4.0	0.0
occus	4.0	4.0
monas	4.0	0.0
bacter	4.0	8.0
JM	4.0	0.0
	4.0	0.0
ia	4.0	12.0
	4.0	8.0
acterium	4.0	0.0
a	4.0	0.0
lla	4.0	0.0
a	4.0	0.0
as	4.0	0.0
hilus	4.0	4.0
pacterium	4.0	0.0
omonas	4.0	4.0
microbium	4.0	4.0
	4.0	4.0
a	4.0	8.0
CUS	0.0	4.0
cillus	0.0	4.0
sidium	0.0	4.0
nas	0.0	4.0
	0.0	4.0
orium herbarum	0.0	4.0
occus macerans	0.0	4.0
ter	0.0	4.0
hilus	0.0	4.0
cterium	0.0	4.0
A	0.0	4.0
phomonas	0.0	4.0
sma parvum	0.0	4.0