



TEST OF CURE FOR NEISSERIA GONORRHOEAE AMONG MEN WHO HAVE SEX WITH MEN: RESULTS OF A PILOT STUDY

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BACKGROUND

- Neisseria Gonorrhoeae (NG) susceptibility to oral cephalosporins is declining, primarily in the western US among men who have sex with men (MSM), the region and population where fluoroquinolone resistance initially emerged.
- NG Multiantigen sequence typing (NG MAST) is a culture-independent method which employs PCR and sequencing methods to identify NG strain types.
- NG MAST type ST 1407 often possesses higher MICs to 3rd generation cephalosporins and has been associated with treatment failures worldwide.
- isolates with the mosaic pink isolates (X200X) have been shown to possess a reduced susceptibility to oral extended spectrum cephalosporins.
- Routine test of cure (TOC) among MSM has been suggested as a strategy to identify potential NG treatment failures.

METHODS

- Men who self identified as MSM and had NG detected by a transcription mediated nucleic acid amplification test (NAAT) (Aptima Combo 2, Hologic, Gen Probe, San Diego, CA) from urine, rectum or pharynx were sequentially recruited from a public STD clinic.
- MSM were offered a return TOC in 7-10 days by clinic nurse and were instructed to abstain from sex until TOC was performed.
- All men were treated with ceftriaxone 250mg IM and azithromycin 1gm orally.
- Pre and post treatment isolates were performed for rectal and pharyngeal specimens Culture was performed for urethral specimens if discharge still present.

OBJECTIVES

- Determine the proportion of NG infected MSM who when return for a 7-10 day TOC with no financial incentive.
- Determine the proportion of NG infected MSM who tested seropositive by NAAT or culture at 7-10 days.

Definition of Suspect Cephalosporin Failure

Clinical Criteria

- Laboratory-confirmed NG at initial visit and re-confirmed CDC recommended (cephalexin) and 1st/2nd antimicrobial regimen as treatment.
- Positive NG test result (positive culture >= 72 hours after treatment, and/or positive NAAT >= 7 days after treatment, and/or patient repeatedly did not engage in sexual activity after treatment).

OR

- Antimicrobial susceptibility testing of pre-treatment and post-treatment NG isolate result:
 - Ceftriaxone MIC >= 0.25 µg/ml
 - Ceftriaxone MIC >= 0.125 µg/ml
- Pre and post treatment isolates possess identical or highly related (> 99% sequence) types by NG MAST

RESULTS

Table 1. Demographic, Behavioral and Clinical Characteristics of Study Participants

	N	%
Total	22	100
Race		
White/Caucasian	8	36.3%
Hispanic/Latino	11	50%
Asian/Asian American	3	13.6%
Gender of Sex Partners		
Male only	21	95.4%
Male and female	1	4.5%
Number of sex partners		
1	8	33.8%
2-4	13	61.9%
5+	3	14.3%
HIV Status		
Positive	13	59.1%
Negative	7	31.8%
Unknown	2	9.1%
Symptomatic at initial diagnosis		
Yes	7	31.8%
No	15	72.3%
Agreed to return for test of cure	21	95.4%
Actually returned for test of cure	13	71.4%
Among those who returned for test of cure	14	93.3%

Table 2. Baseline and test of cure results by anatomic site

	Rectal	Pharyngeal	Urethral
N tested at baseline	22	22	22
N (%) positive	12 (54.5%)	14 (63.6%)	0 (0%)
N test of cure NAAT	16	16	16
N (%) positive	0 (0%)	11 (68.7%)	0 (0%)
N test of cure culture	16	16	16
N (%) positive	0 (0%)	16 (100%)	0 (0%)

Suspect cephalosporin failure case

- >23 y old HIV-negative MSM with 1 female and 3 male sexual partners in the last 2 months. All of sexual partners were from northern California aside from a German male backpacker who was his last sexual partner.
- 7/10/12: NG NAAT positive for pharyngeal infection (negative for NG at other sites, and negative for CT and syphilis)
- Lab findings (SFDPH): NG MAST 1407 (independently verified by outside lab), mosaic penA gene positive.
- 7/20/12: Treated for pharyngeal gonorrhea with ceftriaxone 250mg IM and Azithromycin 1 gram orally. Patient asymptomatic.
- 8/2/12 (TOC visit 1): NG NAAT persistently positive for pharyngeal infection, NG culture negative. The patient reported no reinfection sex and remained asymptomatic.
- Lab findings (SFDPH): NG MAST 1407 (not verified by outside lab)
- 8/9/12: Patient re-treated with Ceftriaxone 500mg IM and direct observed Azithromycin 2 grams orally.
- 9/13/12 (TOC visit 2): NG NAAT negative for pharyngeal infection.

CONCLUSIONS

- Routine TOC for NG appears acceptable to MSM in a public-STD clinic setting, with 71% return rates without financial incentives.
- Routine TOC can facilitate identification of asymptomatic treatment failures
- Current gonorrhea surveillance limited to urethral specimens may underestimate prevalence of antibiotic resistance.
- Limitations: Single clinic, small sample size