

Treatment Failures with Cephalosporin Monotherapy Vs Dual Therapy for Gonorrhea at Two Alberta STI Clinics, 2010-2013

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Late Breaker Abstract

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Background

The emergence of decreasing *N. gonorrhoeae* (NG) susceptibility to the “last-line” cephalosporins and azithromycin is a public health threat. In 2012, the NG treatment guidelines in Alberta changed from cephalosporin monotherapy to combination therapy with azithromycin.

Objective

To examine the effectiveness of different recommended treatment regimens for different anatomical sites, different patient populations and different MICs.

Methods

Inclusion Criteria:

- Culture positive NG cases reported by two Alberta STI Clinics between January 1, 2010 and September 30, 2013, AND
- Received a medication regime containing:
 - cefixime 400 mg po
 - cefixime 800 mg po
 - ceftriaxone 125 mg IM
 - ceftriaxone 250 mg IM
 monotherapy or in combination with azithromycin 1 gm po single dose or doxycycline 100 mg bid x 7 days po, AND
- returned for test of cure (TOC) within 30 days of treatment.

Treatment failures (TF) were defined as the absence of reported sexual contact during the post-treatment period and a positive culture ≥72 hours post-treatment or a positive NAAT ≥2 weeks post-treatment.

Results

- A total of 1,085 isolates were reviewed among MSM (62.9%), pregnant women (1.2%), and non-MSM/non-pregnant women (35.9%).
- The site of isolate collection was evenly distributed between oropharyngeal (34.7%), anorectal (31.6%), and urogenital (33.6%, Table 1).
- <2% of isolates had reduced susceptibility to current treatment drugs.
- Follow-up TOC assessment rates at 30 days post-treatment were highest for extragenital sites (P=<0.001, Table 2).

Table 1. MIC Characteristics of Isolates by Site (Alberta, 2010-2013, N=1,085)

	Oropharyngeal (n=377)	Anorectal (n=343)	Urogenital (n=365)	Total (n=1,085)	P-Value
MIC µg/mL (Denominators may change due to missing data.)					
Cefixime <0.25	333 (99.4)	291 (99.7)	342 (99.7)	966 (99.6)	0.84
Cefixime ≥0.25	2 (0.6)	1 (0.3)	1 (0.3)	4 (0.4)	
Ceftriaxone <0.125	328 (97.9)	290 (99.3)	341 (99.4)	959 (98.9)	0.17
Ceftriaxone ≥0.125	7 (2.1)	2 (0.7)	2 (0.6)	11 (1.1)	
Azithromycin <2.0	323 (96.4)	291 (99.7)	340 (99.1)	954 (98.4)	0.004
Azithromycin ≥2.0	12 (3.6)	1 (0.3)	3 (0.9)	16 (1.9)	
TOC 30 days	151 (40.1)	120 (35.0)	30 (8.2)	301 (27.7)	<0.001

Table 2. Characteristics of Isolates with a Test Of Cure by Site (Alberta, 2010-2013, N=301)

	Oropharyngeal (n=151)	Anorectal (n=120)	Urogenital (n=30)	Total (n=301)	P-Value
Patient Group					
MSM	103 (68.2)	79 (65.8)	17 (56.7)	199 (66.1)	0.66
Pregnant Women	3 (2.0)	2 (1.7)	1 (3.3)	6 (2.0)	
Non-MSM/Non-Pregnant	45 (29.8)	39 (32.5)	12 (40.0)	96 (31.9)	
Treatment					
Monotherapy	43 (28.5)	39 (32.5)	6 (20.0)	88 (29.2)	0.39
Combination Therapy	108 (71.5)	81 (67.5)	24 (80.0)	213 (70.8)	

Table 3. Treatment Failures by Site of Isolate (Alberta, 2010-2013, N=14)

Patient Group	Oropharyngeal	Anorectal	Urogenital	Total
Total TF	9/151 (6.0)	4/120 (3.3)	1/30 (3.3)	14/301 (4.7)
Monotherapy cefixime 400 mg	8/33 (24.2)	4/31 (12.9)	1/6 (16.7)	13/70 (18.6)
Monotherapy cefixime 800 mg	1/4 (25.0)	0/5 (0)	0	1/9 (11.1)
Monotherapy ceftriaxone 250 mg	0/6 (0)	0/3 (0)	0	0/9 (0)
Combination Therapy (all combinations)	0/108 (0)	0/81 (0)	0/24 (0)	0/213 (0)

Table 4. Median MIC Values (µg/mL) by Treatment Failure (TF) Status (Alberta, 2010-2013, N=253)

Drug (IQR)	TF (n=14)	Non-TF (n=239)	P-Value
Cefixime	0.016 (0.016-0.016)	0.016 (0.016-0.016)	0.63
Ceftriaxone	0.016 (0.008-0.03)	0.008 (0.008-.0016)	0.33
Azithromycin	0.5 (0.25-1.0)	0.5 (0.25-1.0)	0.61

Treatment Failures

- Fourteen TF involving cefixime 400 mg monotherapy were found: 11 among MSM and 2 among non-MSM/non-pregnant (Table 3).
- An additional TF was found in a pregnant female using cefixime 800 mg monotherapy.
- All TF isolates were fully susceptible to cefixime, ceftriaxone and azithromycin with no significant differences in median MIC values (Table 4).

Conclusions

In contrast to cefixime monotherapy, no TF were identified with combination NG treatment.

Our data support the 2011 Canadian STI Guidelines switch to combination treatment of NG with a cephalosporin plus azithromycin.

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