Background

• Since 2010, the US CDC has recommended two drugs to treat *N. gonorrhoeae*

• At present, all recommended gonococcal treatment regimens contain Azithromycin

• Emergence of azithromycin-resistant gonorrhea threatens the efficacy of recommended regimens

Methods

• Neisseria Reference Laboratory
  — Test all urethral isolates using agar dilution
  — Screen others with Kirby-Bauer disk diffusion
  — Small zones are further tested with agar dilution
  — Antimicrobial Susceptibility Panel includes:
    • Penicillin (PCN)
    • Tetracycline (TET)
    • Cefixime (CFX)
    • Ceftriaxone (CRO)
    • Ciprofloxaxin (CIP)
    • Azithromycin (AZM)
    • Beta-lactamase (LAC)
    • Spectinomycin/Gentamicin
  — We used CDC “alert value” breakpoint ≥2 mcg/mL to denote AZM resistance.

Results: Jan 2014 – June 2015

Total: 29 /507 tested isolates (5.7%)

MSM
29 /449 tested isolates (6.5%)

Pharyngeal
8 /102 tested isolates (7.9%)

Urethral
16 /250 tested isolates (6.4%)

Rectal
5 /97 tested isolates (5.2%)

3/24 Cases (12.5%) co-infected with HIV

Number & Proportion of Azithromycin-Resistant *N. gonorrhoeae* Isolates in King County, Washington by Quarter: Jan 2014 – Jun 2015

<table>
<thead>
<tr>
<th>Antimicrobial (breakpoint)</th>
<th>Non-AZM-R Urethral Isolates (N=277)</th>
<th>AZM-R Isolates (N=29)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number Resistant (%)</td>
<td>Median MIC (range)</td>
</tr>
<tr>
<td>Azithromycin (≥2 µg/mL)</td>
<td>0</td>
<td>0.25 (0.03 – 1)</td>
</tr>
<tr>
<td>Cefixime (≥0.5 µg/mL)</td>
<td>0</td>
<td>0.015 (0.015 – 0.25)</td>
</tr>
<tr>
<td>Ceftriaxone (≥0.5 µg/mL)</td>
<td>0</td>
<td>≤0.008 (≤0.008 – 0.25)</td>
</tr>
<tr>
<td>Tetracycline (≥2 µg/mL)</td>
<td>103 (37.2%)</td>
<td>1 (0.25 – 16)</td>
</tr>
<tr>
<td>Spectinomycin (2014) (≥128 µg/mL)</td>
<td>0</td>
<td>Susceptible</td>
</tr>
<tr>
<td>Gentamicin (2015) (≥8 µg/mL)</td>
<td>0</td>
<td>8 (4 – 8)</td>
</tr>
<tr>
<td>Penicillin (≥1 µg/mL)</td>
<td>63 (22.0%)</td>
<td>1 (0.25 – 16)</td>
</tr>
<tr>
<td>Ciprofloxacin (≥0.5 µg/mL)</td>
<td>97 (35.0%)</td>
<td>≤0.015 (≤0.015 – &gt;16)</td>
</tr>
</tbody>
</table>

Results:  Treatment Regimens

- Ceftriaxone 250 mg IM & Azithromycin 1g PO
- Ceftriaxone 250 mg IM & Doxycycline 100 mg BID x7d
- Ceftriaxone 250mg IM alone
- Azithromycin 2g PO only
- Study Drug
- None

Results: Treatment Failures

- 9 Men (38%) Returned for Tests of Cure
- 2 CTX + AZM
- 2 AZM 2g only
- 4 Study Drug
- 1 CTX alone

100% Cure
2/2 (100%)
100% Cure
1/4 (25%)

Cephalosporin Susceptibility

- 7/372 (1.9%) MSM infections during the study period were caused by N. gonorrhoeae with a cefixime MIC=0.25
- 4 urethral isolates and 2 rectal isolates

Summary

  - 6.5% of infections in MSM
  - 2 verified treatment failures
  - No treatment failures in persons treated with ceftriaxone
- 1.7% of infections in MSM caused by organisms with cefixime alert values (MIC=0.25)
- 8.3% of infections in MSM caused by N. gonorrhoeae with an elevated MIC to azithromycin or cefixime

Conclusion

- Azithromycin resistance is increasing among MSM in Seattle
- Efficacy of two-drug oral regimens is uncertain
  - Need for caution in using these regimens in MSM
  - Supports not routinely using expedited partner therapy in MSM
- Avoid 2g AZM alone
Contact Information

Thank you!

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