

High Rates of Macrolide Resistance in Mycoplasma genitalium

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Introduction

- Macrolide resistance widely reported in Mycoplasma genitalium (MG)
- Number of studies:
 - 43% Sydney
 - 100% Greenland
 - 41% London

- 10-15% Sweden
- 30% Japan
- 40% Demark
- Due to limited diagnostics studies restricted
 - small numbers or limited geography
- Aim: To determine the percentage of macrolide resistance in MG positive specimens referred to STBRU







- STBRU national primary diagnostic service for MG charged representative?
- 85 MG Positive specimens referred between 2010 and 2014
- Blinded and anonymised



- 72 from males & 13 from females, 17 centres across England and Wales
- Specimens were then examined using a 23S rRNA PCR followed by full DNA sequence analysis



23s RNA sequencing Results

Sequence identified	Phenotype	No. specimens (73)
Wild-type	Sensitive	12 / 73 (17%)
A2058G	Resistant	22 / 73 (31%)
A2058T	Resistant	1 / 73 (1%)
A2059G	Resistant	34 / 73 (47%)
A2059C	Resistant	4 / 73 (6%)

73/85 specimens - PCR amplification 23S rRNA successful



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17% (12/73) wildtype – sensitive to macrolides



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83.5% Mutations in 23S rRNA genes – resistance to macrolides

Public Health Macr England	Macrolide Resistance - Gender		
	Male %	Female %	
Sensitive	5% (3/61)	75% (9/12)	
Resistant	95% (58/61)	25% (3/12)	

- Resistance higher in males 95% verses 25% females (P = <0.001)
- Artefact? Reflective of the specimens STBRU receives for MGEN testing
 - NGU already received multiple antibiotic courses?
 - Worst persistent cases? What is representative?





- 84% MG specimens SNPs associated with macrolide AMR
- Higher levels of resistance than previously documented representative?
- AMR MG Gender bias
- Results highlight the urgent need for:
 - Greater access to MG diagnostic testing, TOC & resistance testing
 - More extensive surveillance
- Syndromic treatment using any regiment of azithromycin completely ineffective against these strains



Acknowledgements

Rachel Pitt