Resistance-Guided Diagnostics Improves Management of STIs

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Intro

- Antimicrobial resistance of STIs such as *Mycoplasma genitalium* (Mgen) and *Neisseria gonorrhoeae* (GC) have arisen due to empiric treatment and syndromic management.
- Treatment of Mgen is complicated due to macrolide resistance caused by 23S rRNA mutations.
- As sporadic reports of empiric treatment failure with ceftriaxone and azithromycin for GC have occurred in recent years, there is a pressing need to conserve these front line antibiotics
- 70% of GC infections are susceptible to ciprofloxacin, with susceptibility associated with S91 wild-type *gyrA*.[1]

Methods

Mgen

- 244 patients infected with Mgen were tested with ***Resistance****Plus* MG and treated at Melbourne Sexual Health.
- Patients with macrolide resistant Mgen were treated with doxycycline and sitafloxacin.
- Patients with macrolide susceptible Mgen were treated with doxycycline and azithromycin.

GC

- A selection of the most common GC strains in Australia from 2014 were tested with ***Resistance****Plus* GC at the University of Queensland.
- *gyrA* genotype was compared to ciprofloxacin phenotype.

Results

Mgen

- After implementing Resistance Guided Diagnostics - cure rate using azithromycin rose from 48% in 2015 up to 95% in 2017.

GC

- ***Resistance****Plus* GC showed high concordance (100% sensitivity and 97.7% specificity) between *gyrA* genotype and ciprofloxacin phenotype.

Molecular testing of both organism and resistance markers can allow greater confidence in patient therapy.

Conclusion

- The implementation of ***Resistance****Plus* ® tests for GC and MG will provide STI clinicians with more information and empower them to offer the correct treatment the first time, improving cure rates and reducing the spread of antimicrobial-resistant bacteria by utilising Resistance-Guided Diagnoses.

Empiric treatment of STIs is driving resistance of *Neisseria gonorrhoeae* and *Mycoplasma genitalium*.

Resistance Guided Diagnostics can improve treatment outcomes for patients and reduce healthcare costs

Management of Mgen at Melbourne Sexual Health Centre, Australia.

Date	Azithro cure rate	95% CI	Selected resistance	FQ cure rate in failed azithro	Publication
2005-2007	84%	77-90%	n/a	100%	Bradshaw PlosOne 2008[2]
2012-2013	61%	53-69%	10%	88%	Bissessor CID 2015[3]
2013-2015	48%	42-62%	12%	N/A	Read CID 2016[4]
With Resistance Guided Therapy: ResistancePlus MG					
2016-2017	95%	87-97%	3%	92%	Read CID 2018[5]

References
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