

0031

# **PELVIC INFLAMMATORY DISEASE (PID), MYCOPLASMA GENITALIUM AND MACROLIDE RESISTANCE IN ENGLAND**

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**Background/introduction** *Mycoplasma genitalium* (MG) is increasingly implicated in PID pathogenesis with many studies showing MG is as common as chlamydia in high-risk women. Current PID treatment guidelines specify antibiotics with low efficacy against MG. Increasing reports of macrolide resistance suggests first line treatment for MG (azithromycin) may have limitations.

**Aim(s)/objectives** To document rates of MG in a cohort of women with acute PID, and the proportion with baseline macrolide resistance.

**Methods** As part of a multicentre, open-label, non-inferiority RCT comparing ofloxacin/metronidazole (arm-1) with azithromycin 1g day-1; 500 mg od day 2–5, metronidazole/ceftriaxone (arm-2), samples were collected for baseline chlamydia, gonorrhoea and mycoplasma infection. Microbiological cure rates were documented at 6–8 weeks. Positive MG specimens were examined for macrolide resistance using a 23S rRNA PCR.

**Results** 313 women were recruited, median age 25. Preliminary results showed chlamydia was confirmed in 9.5%, MG in 8.2% and gonorrhoea in 0.4%. Of the 16 samples available for resistance testing, 9 (56%) had macrolide resistance mutations (A2058G/T, A2059G/C) at baseline. The reference laboratory received test-of-cure samples for only 8 patients with MG, of which 6 were negative, however 2 remained positive, both with A2059G nucleotide substitutions. Further results will be presented.

**Discussion/conclusion** MG infection was nearly as common as chlamydia in this cohort. Failure of patients to return at 6–8 weeks affected our ability to properly assess test-of-cure rates. Baseline macrolide resistance was unexpectedly high and impacted negatively on treatment success.

0032

# **IMPLEMENTING A TEST AND TREAT PATHWAY FOR MYCOPLASMA GENITALIUM IN MEN WITH URETHRITIS ATTENDING A GUM CLINIC**

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**Background/introduction** National guidelines recommend testing men with non-gonococcal urethritis (NGU) for *Mycoplasma genitalium* (MG) where testing is available. Recent studies have shown concerning levels of macrolide resistance and high rates of treatment failure with 1 g azithromycin. In response to this, we changed our standard treatment of NGU to doxycycline and implemented a test and treat pathway for MG in male NGU.

**Aim(s)/objectives** To determine the prevalence of MG and to measure clearance rates of infection post-treatment.

**Methods** From 1<sup>st</sup> September 2015 first void urine samples from men with NGU were routinely tested for MG using the Fast Track Diagnostics™ urethritis PCR. Men with confirmed MG were given 5days azithromycin and offered test of cure at 4 weeks.

**Results** 304 men had NGU over 5months. Mean age 33.2 years, 64.5% heterosexual, 77.6% white ethnicity and 8.2% HIV-positive. Tests for MG were performed in 230/304 (76%). 16.5% (38/230) were MG positive compared with 22.5% chlamydia. 6 (15.8%) men with MG were co-infected with chlamydia and 1 (2.6%) had urethral gonorrhoea. 20/38 men with MG (52.6%) were given azithromycin 5days, 8/38 (21.1%) had azithromycin 1g stat. 7/38 (18.4%) re-tested positive at 4 weeks, 6 of whom had initially had azithromycin 5days. All were given moxifloxacin 400mg for either 7, 10 or 14 days.

**Discussion/conclusion** The high rates of MG found support routine testing in men with NGU. Despite appropriate treatment, some men returned with positive TOC suggestive of macrolide failure. This demonstrates a need for more widely available MG diagnostics with resistance testing in the UK and attention to antimicrobial stewardship so that NGU can be better managed.

0033

# **A QPCR ASSAY THAT SIMULTANEOUSLY DETECTS MYCOPLASMA GENITALIUM AND MUTATIONS ASSOCIATED WITH MACROLIDE RESISTANCE HAS THE POTENTIAL TO IMPROVE PATIENT MANAGEMENT**

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**Background** Treatment of *M. genitalium* (Mg) infection with azithromycin, is routinely utilised in clinical practice. However, widespread use has been associated with the emergence of macrolide resistance and ineffective cure rates. A new qPCR assay, PlexPCR™ *M. genitalium* ResistancePlus™ kit, has been developed to simultaneously identify Mg and 5 mutations in the 23S rRNA gene (positions 2058 and 2059 (*E. coli* numbering)) associated with macrolide resistance.

**Aim** This study evaluates incorporating the assay into a diagnostic algorithm to direct faster and more appropriate clinical management and reduce the spread of antibiotic resistant.

**Methods** 1087 consecutive urogenital samples from symptomatic and asymptomatic patients were evaluated prospectively with the PlexPCR *M. genitalium* ResistancePlus kit. This was compared to an in-house test for Mg detection and sequencing of Mg positives to determine 23S rRNA mutation status. The PlexPCR *M. genitalium* ResistancePlus kit employs novel PlexPrime (amplifies mutants specifically) and PlexZyme (superior multiplexing) technology.

**Results** The prevalence of Mg was 6.0% and in the Mg positive samples 23S rRNA mutation prevalence was 63.1%. The PlexPCR *M. genitalium* ResistancePlus assay showed very high clinical performance compared to the reference methods with sensitivity and specificity for Mg detection of 98.5% and 100.0%, and 23S rRNA mutation detection of 92.7% and 95.7% respectively.

**Conclusion** The PlexPCR *M. genitalium* ResistancePlus kit demonstrated excellent clinical performance for the simultaneous detection of Mg and assessment of macrolide resistance. This test has the potential to be used in screening of Mg detection and macrolide resistance to allow more appropriate clinical management.