DETECTION OF *MYCOPLASMA GENITALIUM* MACROLIDE RESISTANT STRAINS IN PATIENTS ATTENDING A GENITOURINARY MEDICINE (GUM) CLINIC IN NORTHERN IRELAND

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BACKGROUND

Mycoplasma genitalium (MG) is a recognised sexually transmitted infection causing urethritis in men and thought to be associated with pelvic inflammatory disease (PID) in women. MG is amongst the smallest self replicating bacteria and its lack of cell wall renders it resistant to beta-lactam antibiotics. MG is a highly fastidious and slow growing bacterium therefore cultivation is difficult and detection is reliant on molecular techniques. Routine testing for MG is non-existent in Northern Ireland therefore its true prevalence is unknown. However reports from other countries suggest the rate of MG alongside resistance to first-line treatment regimens are increasing. A commercial test is available which is capable of detecting MG in clinical samples and identifying common 23s rRNA mutations which are associated with macrolide resistance. The purpose of this observational study was to obtain preliminary data on the rate of wild type and mutant MG strains circulating in patients attending Genitourinary Medicine (GUM) Clinic in Belfast, N. Ireland.

METHODS

- A total of 200 specimens were tested in the study which consisted of rectal swabs from men who have sex with men (n=89) urine (n=67) and vaginal swabs (n=44) from symptomatic males and females respectively. All specimens were collected using cobas® PCR Media (Roche Molecular Systems, Inc.)
- 200µl of sample was spiked with supplied MG synthetic internal control (SpeeDx Pty Ltd, Sydney, Australia) and extracted into 100µl of elution buffer using an automated MagNa pure 96 system (Roche Molecular Systems, Inc.)
- Nucleic acid extracts were tested against the *ResistancePlus*™ MG assay (SpeeDx Pty Ltd, Sydney, Australia) to detect MG and associated macrolide resistant mutations
- Polymorphonuclear leukocyte (PMNL) counts for urine and vaginal swabs were collected and routine Chlamydia (CT) and Gonorrhoea (NG) data were also collected for all specimen types

RESULTS

- 18 (9%) patients in the study tested positive for MG
- 10 (55.6%) MG samples had 23s rRNA wild type strain while 8 (44.4%) MG samples harboured 23s rRNA mutant strain [see figure 1].
- All MG positive males and 75% MG positive females had a significant PMNL infiltrate (>10 /hpf) in their respective urethral and vaginal smears [see table 1].
- The overall prevalence of CT and NG in the study were 4% (8/200) and 1.5% (3/200) respectively.
- 1 male patient (urine) had NG/MG co-infection and 1 female had CT/MG co-infection.

Figure 1 Graph to show the percentage of specimens positive for MG and the proportion of wild type MG and mutant MG

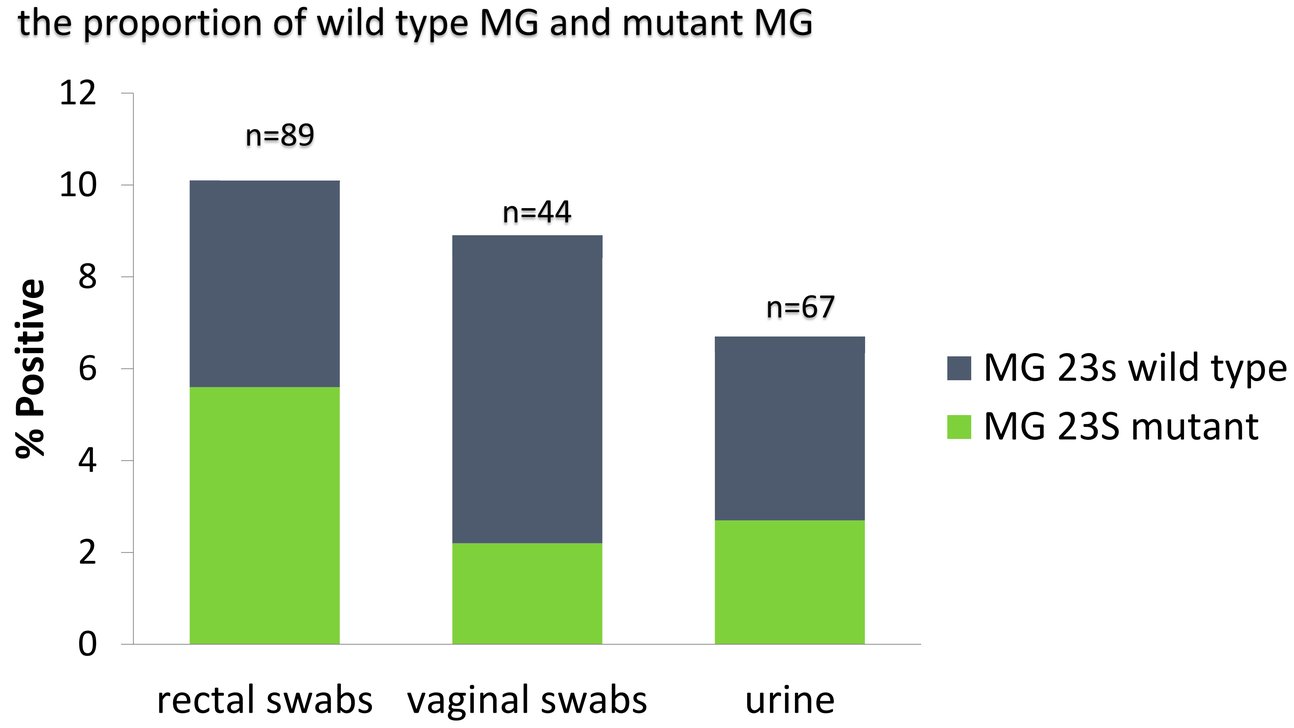

Table 1 Mean age and PMNL count for MG positive and negatives amongst each specimen type

		Number of specimens (%)	Mean age, Yrs (±SD)	PMNLs count <10	PMNLs count ≥10
RECTAL SWABS (n=89)	MG NEG	80 (89.9)	35.57 (11.15)	-	-
	MG POS	9 (10.1)	42.33 (12.75)	-	-
URINE (n=67)	MG NEG	62 (92.5)	34.45 (13.25)	28 (45.2)	34 (54.8)
	MG POS	5 (7.5)	27.50 (4.45)	0	5 (100)
VAGINAL SWABS (n=44)	MG NEG	40 (90.9)	29.56 (9.19)	31 (77.5)	9 (22.5)
	MG POS	4 (9.1)	24 (4.55)	1 (25)	3 (75)

DISCUSSION

- MG was common amongst male and female patients attending GUM clinic in N. Ireland and 23s rRNA mutant strains which may confer resistance to Azithromycin have been detected
- MG was detected in ~10% of MSM in the study. This is concerning as the presence of MG is associated with transmission/acquisition of HIV especially in high risk patients.
- Data from the study indicate routine testing should be performed in N.Ireland to ensure correct antimicrobials are administered which would reduce MG macrolide resistant strains and improve symptoms in patients.
- *ResistancePlus*™ MG assay (SpeeDx Pty Ltd, Sydney, Australia) ease of use and simple analysis software would make routine testing feasible and consequently improve patient outcomes in a clinical setting.