Receiving 1g azithromycin as part of Mass Drug Administration (MDA) for the elimination of trachoma is associated with reduced genital *Mycoplasma genitalium* prevalence

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Background

- Trachoma is a disease caused by ocular infection with *Chlamydia trachomatis* (CT)
- 200 million people are at risk of blindness from trachoma infection worldwide (1)
- Mass Drug Administration (MDA) using single dose 1g azithromycin is a key component of the WHO trachoma elimination strategy
- The sexually transmitted infection (STI) *Mycoplasma genitalium* (MG) is a major cause of urethritis and Pelvic Inflammatory Disease
- 1g azithromycin is a sub-optimal treatment for MG with a cure rate of 81% (2)
- This dose is also known to induce post-treatment resistance (2)

Aim: to investigate factors associated with MG infection pre- and post-MDA in a sample of antenatal clinic (ANC) attendees

Methods

- Pre-MDA and six months post-MDA vulvo-vaginal swab samples collected from women attending three outpatient ANCs in Honiara, Solomon Islands
- Samples initially tested by BD Probetec CT/NG assay
- Samples from both pre- and post-MDA sample sets found to be CT negative by Probetec were tested for MG using the FTD Urethritis Plus kit, with DNA extraction and assay set up performed using Qiagen QIASymphony
- Logistic regression was used to determine factors associated with MG infection
- Variables included: patient age, clinic attended, ethnicity, time spent in education, living in an urban or rural environment, marital status, living with spouse, presence of symptoms associated with an STI, having an STI in the last 12 months, current gonorrhoea or *Trichomonas vaginalis* infection. In post-MDA analysis, receipt of MDA dose was also included.

Results

Table 1. Logistic regression risk factor analysis for being MG positive post-MDA

Received MDA	No. of participants	No. (%) with MG	Univariate Analysis		
			OR	95%CI	P-value
No	125	22 (17.6)	1.00		
Yes	126	5 (4.0)	0.19	0.07-0.53	0.001

- MG positivity did not drop significantly; pre-MDA **11.9%** (95%CI: 8.3-16.6; 28/236) versus **10.9%** (95%CI: 7.7-15.4; 28/256) six months post-MDA (p=0.7467)
- Receipt of 1g azithromycin dose as part of MDA amongst ANC attendees was the only significantly associated factor in univariate analyses, with a drop in the odds of having MG (p=0.001) (**Table 1**)
- No other factors were associated with MG positivity in either the pre- or post-MDA sample sets

Discussion

- A benefit to the individual patient was observed, with reduced odds of having MG infection, if 1g azithromycin had actually been received as part of the MDA program
- There was no overall drop in MG positivity pre- and post MDA in the sample, indicating that there was no population level benefit to ANC attendees in terms of MG positivity
- This may be explained by a number of factors:
 - MDA uptake:** 50.2% of patients reported receipt of the MDA dose in this study, which is significantly lower than the wider population uptake, reported as being between 75-80% (3)
 - 1g azithromycin dose too low:** 1.5g dose may be more effective in lowering prevalence further as the 1g dose is thought to have a cure rate of only 81% (2)
 - Rapid strain replacement and spread:** This could result in overall prevalence remaining unchanged
- Further investigation is needed to understand the effect of MDA in the MG infected population, including MG's resistance profile pre- and post-mass treatment, and whether MDA with 1g azithromycin could be an effective tool for STI control

References

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