Prevalence of Mycoplasma genitalium and Macrolide Resistance in Adolescent Females Receiving Care at a Pediatric Hospital

Kayla Barnes

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Submitting/Presenting Author (must be a trainee): Kayla Barnes
Primary Email Address: kmbarnes@cmh.edu

☐ **Medical Student**
☐ **Resident/Psychology Intern (≤ 1 month of dedicated research time)**
☐ **Resident/Ph.D/post graduate (> 1 month of dedicated research time)**
☐ **Fellow**

Primary Mentor (one name only): Melissa Miller
Other authors/contributors involved in project: Bishnu Adhikari PhD, Rangaraj Selvarangan PhD, Christopher J Harrison MD, Ashley Sherman MA

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Describe role of Submitting/Presenting Trainee in this project (limit 150 words):
Primary investigator of the project. As the primary investigator I selected all samples to be tested by the lab based on the inclusion criteria and conducted a chart review on patient's whose samples were used.

Background, Objectives/Goal, Methods/Design, Results, Conclusions limited to 500 words

Background: Mycoplasma *genitalium* is an established sexually transmitted cause of nongonococcal urethritis in males and macrolide resistance is increasing. The pathogenic role is less well-defined in adolescent females and guidelines recommend M. *genitalium* testing only be considered in cases of persistent or recurrent cervicitis and pelvic inflammatory disease (PID). We lack understanding of the prevalence and macrolide resistance of M. *genitalium* among adolescent females.

Objectives/Goal: To determine the prevalence of M. *genitalium* and rate of detected macrolide resistance among adolescent females seeking care at a pediatric children's hospital.

Methods/Design: We collected 200 salvaged urogenital samples (56 urine and 144 vaginal) from adolescent females aged 12-17 years seeking care between November 1, 2019 and April 31, 2020. We

used Aptima Mycoplama *genitalium* assay (Hologic) to detect M. *genitalium*, Lightmix Modular Mycoplasma Macrolide kit (TIB MOLBIOL) to determine macrolide resistance, and confirmed findings by using Sanger Sequencing. We reviewed electronic medical records to determine presenting symptoms, concurrent urinary tract or sexually transmitted infections, socio-demographics, and sexual risk behaviors. To examine for associations

Results: The prevalence of M. *genitalium* was 9.5% (95% CI, 5.4, 13.6). Of the 19 positive specimens, 5 were urine and 14 were vaginal samples. Macrolide resistance was detected in 89.5% (17/19) positives (95% CI, 75.7, 100). Both susceptible positives were from vaginal specimens. Among these positives, 89.5% had history of positive/negative sexual experience documented and 53% reported history of vaginal intercourse. Compared to those without co-infection, females with any co-infection were more likely to have M. *genitalium* (6.6% vs. 18.4%, p=0.023). The most common co-infection among positives was Chlamydia *trachomatis* (26.3%) and nearly all (80%) of these patients were treated with azithromycin. The mean age for females with M. *genitalium* was somewhat higher than those without (17.1 $\pm$ 0.7 vs 16.4 $\pm$ 1.7, p=0.057). Compared to white females, black females were more likely to have M. *genitalium* (3.3% vs 17.4%, p=0.015%).

Conclusions: M. *genitalium* can often be detected among genitourinary samples from adolescent females and is nearly always resistant to macrolide antibiotics. Additional work is needed to clarify the potential pathogenic role of M. *genitalium* in adolescent female reproductive health.