State of Alaska Epidemiology Bulletin

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Mycoplasma genitalium in Alaska

Background

Mycoplasma genitalium (*Mgen*) is a fastidious, sexually transmitted bacterium that lives in and on the epithelial cells of the urogenital tract. *Mgen* lacks a cell wall, is difficult to culture, and develops resistance to antibiotics easily. Although *Mgen* can be asymptomatic, its symptoms often resemble those of *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC) infections. Inflammation due to infection has been implicated in cases of non-gonococcal urethritis (NGU), vaginitis, cervicitis, endometritis, pelvic inflammatory disease (PID), and infertility. Typical symptoms of *Mgen* urethritis include dysuria, urethral pruritis, and purulent or mucopurulent urethral discharge. Typical symptoms of *Mgen* cervicitis include vaginal discharge, vaginal itching, dysuria, and pelvic discomfort. Vaginal wet smear or cervical fluid Gram stain may show elevated numbers of polymorphonuclear leukocyte cells. Symptoms of PID due to *Mgen* may include mild to severe pelvic pain, abdominal pain, abnormal vaginal discharge, and/or bleeding.

The prevalence of *Mgen* in the general population nationally is estimated to be ≤3.3%.[1] Among persons at increased risk for sexually transmitted infections (STIs), the estimated prevalence is higher (10%–41% in males and 7.3%–14% in females).[1] People who are at increased risk include symptomatic persons who attend STI clinics, persons with multiple sexual partners, persons who work in the sex industry, and persons who are incarcerated, among others.[1,2] Observational studies have shown a strong association between infections with *Mgen* and human immunodeficiency virus (HIV).[3]

Antimicrobials that are commonly used to treat infections like CT and GC can sometimes inadvertently select for resistant organisms. A meta-analysis of antimicrobial resistance studies in the U.S. showed 56.5% resistance to azithromycin, 12.8% resistance to moxifloxacin, and 11.2% dual resistance to both drugs in *Mgen*-positive samples tested.[4]

In January 2019, the U.S. Food and Drug Administration (FDA) granted clearance of the Aptima *Mycoplasma genitalium* Assay to Hologic, Inc. This nucleic acid amplification test (NAAT) detects 16S ribosomal RNA (rRNA) from *Mgen* using the Panther, a fully automated test system.[5] In June 2019, Hologic supplied assay reagents to the Alaska State Public Health Laboratory (ASPHL) in Anchorage to measure percent positivity in populations at an increased risk in Alaska.

Methods

We performed an investigation to determine the prevalence of *Mgen* in a random sample of clinical specimens submitted to ASPHL for CT or GC testing. A variety of sample types received during this period were tested for *Mgen*.

Results

Of the 259 samples that were tested for *Mgen*, 32 (12.4%) tested positive and 8/32 (25%) tested positive for dual infection with *Mgen* and CT (7) or GC (1). In April of 2022, ASPHL repeated *Mgen* testing with an additional 274 samples. Of these, 34 (12.4%) samples tested positive for *Mgen* and 6/34 (17.6%) tested positive for dual infection with CT. The two testing periods combined demonstrated a 12.4% prevalence of *Mgen* infection in samples tested and a 21.2% prevalence of dual infection with CT or GC in specimens positive for *Mgen*.

Discussion

This investigation demonstrated a high prevalence (12.4%) of *Mgen* infection among samples submitted to ASPHL for GC and CT testing. Among those samples that tested positive for *Mgen*, many (>20%) also tested positive for CT or GC. To put this into perspective, in 2019, 20,484 clinical samples were received by ASPHL for CT and GC testing. Percent positivity rates were 6.5% (1,121) for CT and 3.2% (450) for GC; 181 CT/GC co-infections were detected (553 samples were deemed unsatisfactory for testing). In 2022, 13,533 clinical samples were received by ASPHL for CT and GC testing. Percent positivity rates were 5.1% (688) for CT and 2.6% (352) for GC; 134 CT/GC co-infections were detected (332 samples were deemed unsatisfactory for testing). The *Mgen* percent-positivity rate of 12.4% is considerably higher than both CT and GC percent-positivity rates, indicating more people with undetected and untreated infection.

ASPHL will be performing testing for *Mgen* starting April 3, 2023, using the Hologic Aptima *M. genitalium* Assay. Result turnaround time is expected to be 72 hours from request receipt.

Recommendations for Health Care Providers

1. Health care providers should consider testing for *Mgen* in patients with recurrent non-gonococcal urethritis, vaginitis, cervicitis, endometritis, or PID.
2. To diagnose *Mgen* in men using NAAT, a urine sample is the optimal specimen. For females, urine or cervical/vaginal swab samples are acceptable, but the preferred specimen type is a vaginal swab sample.[6]
3. The Hologic nucleic acid amplification test is not a screening test for *Mgen* but should be considered as a reflex test in symptomatic patients testing negative for CT/GC or with unresolved symptoms.
4. *Mgen* is *not* a reportable condition, and the Division of Public Health is not actively tracking or following up on cases.
5. Since resistance testing for *Mgen* is not currently available in Alaska, the recommended treatment regimen is doxycycline 100 mg orally 2 times per day for 7 days, followed by moxifloxacin 400 mg orally once per day for 7 days.[2,7]
6. For cases occurring in pregnancy, consult the STD Clinical Consultation Network for treatment recommendations.[8]
7. Report *Mgen* treatment failures to the CDC registry.[9]
8. For more information, see CDC's *Mgen* clinical fact sheet.[6]

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