A CASE-CONTROL STUDY TO INVESTIGATE THE AETIOLOGY OF PELVIC INFLAMMATORY DISEASE (PID)

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Background:
Chlamydia trachomatis (CT) and *Neisseria gonorrhoeae* (NG) are established causes of acute pelvic inflammatory disease (PID). However, less is known about the association of *M.genitalium* and bacterial vaginosis (BV) with PID. We aimed to determine the contribution of known STIs (CT and NG) and potential emerging causes (*M.genitalium* and BV) to PID.

Methods:
Case control study conducted at Melbourne Sexual Health Centre (MSHC) between 2023-2025. Cases (n=208) were women presenting to MSHC with symptoms of PID who fulfilled CDC clinical criteria for PID on examination. Two control groups comprised: 1) asymptomatic women attending MSHC for STI screening (n=208,“clinic-controls”) and 2) asymptomatic women recruited from the community through expressions of interest (n=100, “community-controls”). All participants were tested for CT, NG, and *M.genitalium* using a NAAT and assessed for BV using the Nugent method.

Results:
Cases were significantly more likely than both control groups to have chlamydia [13% (95%CI:8%–18%) versus 1%(95%CI:5%–13%,p<0.001) and 0%(95%CI:0%-3%,p<0.001)] and gonorrhoea [6%(95%CI:3%–11%) versus 1%(95%CI:0%–3%,p<0.001) and 0%(95%CI:0%–4%,p<0.001)] detected, respectively. *M. genitalium* was more commonly detected in cases than both control groups [12% (95%CI:8%–18%) versus 8%(95%CI 5%–13%,p=0.234) and 2%(95%CI 0.2%-7%,p=0.003)], but this was only significant compared to community-controls. BV was commonly detected in cases [29%(95%CI:22%–36%)] and clinic-controls [25%(95%CI:19%–31%,p=0.354)] but was significantly less common in community controls [10%(95%CI:4%–16%,p<0.001)]. 57% of cases had none of the four infections detected compared to 70%–90% of the controls.

Conclusions:
This study, using CDC criteria to diagnose PID, confirms an association with both chlamydia and gonorrhoea and PID. Neither *M.genitalium* nor BV was significantly more commonly detected in PID than clinic-controls. More than 50% of cases had no infection detected, highlighting the need for sequencing studies to identify novel infectious causes of PID to improve testing and care.