GEOGRAPHICAL DISTRIBUTION AND PREVALENCE OF UROGENITAL CHLAMYDIA AND TRACHOMA: AN ECOLOGICAL STUDY

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Background:
Urogenital *Chlamydia trachomatis* (CT, serovars D-K) is the most common bacterial STI worldwide. Trachoma, caused by repeated ocular CT infection (serovars A-C) is the leading infectious cause of blindness. Partial protective immunity may exist. We conducted an ecological study, hypothesising that trachoma prevalence will be inversely associated with adult urogenital CT prevalence.

Methods:
A systematic review identified urogenital CT population prevalence data, which were matched to the geographically closest trachoma baseline (pre-mass antibiotic treatment) prevalence survey. Trachoma data included trachomatous trichiasis (TT) prevalence in ≥15-year-olds and trachomatous inflammation—follicular (TF) prevalence among 1–9-year-olds. We examined trends, with tertiles (low, medium, high) of TT and TF prevalence.

Results:
We identified 57 urogenital CT studies from 55 districts across 20 countries. Six had trachoma data in the same or a nearby district (<20km away); 23 had trachoma data

<150km away; and 26 had trachoma data ≥150km away. Districts in the low TT prevalence tertile had higher mean urogenital CT prevalence (10.9%, 95%CI 8.7–13.0%) than medium (7.9%, 2.8–13.0%) and high (8.1%, 4.8–11.3%) TT prevalence tertiles. Districts in the low TF tertile had lower urogenital CT prevalence (7.6%, 5.5–9.8%) than medium (9.2%, 6.6–11.8%) and high (12.1%, 8.2–16.1%) tertiles. These findings suggest an inverse association between TT and urogenital CT, and a positive association between TF and urogenital CT. The overlapping 95%CI between urogenital CT prevalence estimates in adjacent tertiles indicates poor precision.

Conclusion:
The potential inverse relationship between TT and urogenital CT is consistent with a hypothesis that frequent reinfections with ocular CT throughout life protect against urogenital CT during adulthood, but the potential positive association between TF and urogenital CT does not. The ecological study design limits interpretation about causality and individual-level associations. Further research and modelling are required to explore these possible associations.

Disclosure of Interest Statement:
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