P08.33 AZITHROMYCIN PHARMACOKINETICS AND IMPLICATIONS FOR EXTENDED DOSES FOR *CHLAMYDIA TRACHOMATIS* AND OTHER SEXUALLY TRANSMITTED INFECTIONS

[1]FYS Kong*, [1]JA Simpson, [2]P Horner, [3]CK Fairley, [1]JS Hocking. [1]*Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, University of Melbourne, 3/207 Bouverie St, Melbourne 3004, Australia*; [2]*School of Social and Community Medicine, University of Bristol, 39 Whatley Road, Bristol BS8 2PS, UK*; [3]*Monash University Central Clinical School and Melbourne Sexual Health Centre, 580 Swanston St, Melbourne 3053, Australia*

10.1136/sextrans-2015-052270.379

Introduction Chlamydia treatment failure remains concerning with high repeat positive diagnoses of up to 14% in women and 22% for rectal infections in men. Meta-analysis estimates of rectal chlamydia treatment efficacy suggests azithromycin may be 20% less efficacious than doxycycline, but this is based on observational data only – with no RCTs evaluating rectal chlamydia treatment nor any pharmacokinetic data for azithromycin in rectal mucosa. This systematic review will examine the dose-related pharmacokinetics of azithromycin in blood and tissues with discussions on possible considerations of extended regimens to improve efficacy for anorectal infections should a 1 g dose prove suboptimal from RCTs.

Methods Medline and Embase were searched from 1946 to February 2015. Inclusion criteria were: English language, adults and reported pharmacokinetics after any oral dose of azithromycin. Studies of urogenital and rectal tissue were the primary focus but other tissues (excluding eyes) were included. Dose administered and pharmacokinetic parameters such as peak concentration and area under the concentration-time curve (AUC) were extracted.

Results Studies reported high concentrations of azithromycin in cervical, urological, gynaecological, pulmonary, prostatic and oral tissue/fluid after total doses of 500 mg to >2 g. No studies of rectal tissue were reported, however studies of gastric tissue/fluid (a proxy for rectal tissue) showed high concentrations being rapidly attained and sustained for >7 days. Increasing doses results in greater tissue concentrations, which are sustained longer above chlamydia minimum inhibitory concentration (MIC) but with only modest increases in peak blood levels between high and low doses. Similar tissue concentrations were obtained whether the total dose was given over short versus longer duration, suggesting regimens beyond (e.g. >3 days) do not have absorption advantages.

Conclusion Azithromycin concentrations above the MIC are rapidly attained and sustained following treatment. While no data are available in rectal tissue, studies in gastric tissue/fluid suggest adequate rectal concentrations should be obtained. Azithromycin pharmacokinetics also suggest that total doses >1 g given over a few days can be effective in delivering high concentrations to tissues susceptible to chlamydia infections.

Disclosure of interest statement None.

P08.34 NUMBER OF SEX ACTS MATTERS FOR HETEROSEXUAL TRANSMISSION AND CONTROL OF *CHLAMYDIA TRACHOMATIS*

[1]CL Althaus*, [2,3]M Choisy, [3]S Alizon, and the CSF group. [1]*Institute of Social and Preventive Medicine (ISPM), University of Bern, 3012 Bern, Switzerland*; [2]*Laboratoire MIVEGEC (UMR CNRS 5290, IRD 224, UM), 34394 Montpellier Cedex 5, France*; [3]*Oxford University Clinical Research Unit, Hanoi, Vietnam*

10.1136/sextrans-2015-052270.380

Introduction Mathematical models are frequently used to assess the impact of control interventions for *Chlamydia trachomatis* and other sexually transmitted infections (STIs). Modelling approaches that stratify the population by the number of sex partners often assume the transmission risk per partner to be constant. However, sexual behaviour data suggests that people with many partners share less sex acts per partner than people with fewer partners. This should lower the risk of transmission per partner for highly sexually active individuals and could have important epidemiological consequences for STI transmission.

Methods We devised a new epidemiological model that we fitted to chlamydia prevalence data from Natsal-2 and CSF, two population-based probability sample surveys of sexual behaviour in Britain and France.

Results Compared to a standard model where the transmission risk per partner is constant, a model with realistic numbers of sex acts per partner provided a better fit to the data. The improved model provided evidence for strong assortative mixing (ϵ = 0.83; 95% CI 0.46–0.96) among individuals with different numbers of sex partners. The basic reproduction number (R_0) exceeds the threshold of one for all individuals with one or more new heterosexual partners in the last year, and saturates around three for higher number of partners.

Conclusion Our results suggest that all chlamydia infected individuals with one or more new heterosexual partners per year contribute significantly to ongoing transmission, underlining that control interventions should be aimed towards all sexually active young adults.

Disclosure of interest statement CLA received funding through an Ambizione grant from the Swiss National Science Foundation (project 136737). SA is funded by an ATIP-Avenir from CNRS and IN- SERM. SA and MC are also supported by the CNRS and the IRD. We declare no competing interests.

P08.35 CLUSTER ANALYSIS OF *CHLAMYDIA TRACHOMATIS* STRAINS USING TWO MULTILOCUS SEQUENCE TYPING SCHEMES SHOWS DIFFERENCES IN DISCRIMINATION OF MSM STRAINS VERSUS THOSE OF HETEROSEXUALS

[1]Bart Versteeg*, [1]Sylvia M Bruisten, [2]Arie van der Ende, [2]Yvonne Pannekoek. [1]*Public Health Laboratory, Public Health Service Amsterdam, Amsterdam, The Netherlands*; [2]*Department of Medical Microbiology, Academic Medical Center Amsterdam, The Netherlands*

10.1136/sextrans-2015-052270.381