P763 ATTENUATION OF SYPHILIS INFECTION FOLLOWING IMMUNIZATION OF RABBITS WITH A TRIVALENT ANTIGEN COCKTAIL

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10.1136/sextrans-2019-sti.821

Background The bacterium that causes syphilis, *Treponema pallidum* subsp. *pallidum* (*Tp*), elicits cellular and humoral immune responses to numerous antigens during infection. We have identified three recombinant peptide antigens that, when used separately for immunization, show promise in the attenuation of chancre development or dissemination to distant tissues. Here, we report protection induced by a three-antigen cocktail emulsified in either of two custom adjuvants containing Natural or Synthetic TLR4 agonists + a natural Mincle agonist.

Methods Three purified recombinant peptides [TprK (aa37-273), Tp0751 (aa24-237), and Tpr Subfamily I (23-351)] were emulsified in either adjuvant and used to immunize groups of 8 rabbits. The immunized rabbits and 8 Unimmunized controls were challenged intradermally with $10^{\wedge}5$ *Tp*/site at 10 sites. Lesion development was recorded daily. Treponemal burden was measured by darkfield (DF) microscopy and qPCR of lesion aspirates, and dissemination to distant tissues was evaluated by rabbit infectivity test (RIT).

Results Compared to Unimmunized, treponemal burden by DF in lesion aspirates at Day 19 was lower in both Natural (P=0.001) and Synthetic (P=0.004) groups; by qPCR, treponemal burden was lower in the Natural group (P=0.008). At Days 19 and 30, the proportion of lesions ulcerating was lower in the Natural group, compared to Unimmunized (P=0.0001 [d.19] and P=0.0002, [d.30]). At day 30, the proportion of lesions ulcerating in the Natural group was lower than in the Synthetic (P=0.04) group. Mean lesion volume was smaller in immunized groups versus Unimmunized on days 10–25. RIT indicated the lowest number of disseminated *Tp* in rabbit tissues from the Natural group, followed by the Synthetic group, then the Unimmunized group (P=0.0247).

Conclusion Immunization with the three-antigen cocktail significantly attenuates syphilis infection: enhancing *Tp* clearance, promoting lesion healing, and reducing dissemination. In rabbits, Natural adjuvant was more effective than Synthetic adjuvant in inducing protective immunity.

Disclosure No significant relationships.

P764 GETTING TO THE BOTTOM OF IT: SEXUAL POSITIONING AND SYPHILIS STAGE AT DIAGNOSIS AMONG MEN WHO HAVE SEX WITH MEN

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10.1136/sextrans-2019-sti.822

Background Effective syphilis control could be achieved by reducing its duration of infectiousness, for example, by identifying a higher proportion of cases at the primary stage. We hypothesised that men who have sex with men (MSM) who practice receptive anal intercourse ("bottoms") are more likely to miss the primary stage and present with secondary syphilis, compared to MSM who practice exclusively insertive anal intercourse ("tops").

Methods This was a retrospective analysis of MSM diagnosed with either primary or secondary syphilis at Melbourne Sexual Health Centre between 2008 and 2017. We analysed associations between the stage of syphilis (primary vs secondary) and sexual behaviour data collected by computer-assisted self-interview (CASI).

Results 559 MSM diagnosed with syphilis provided sufficient behavioural data for analysis, of whom 338 (60%) had primary syphilis and 221 (40%) had secondary syphilis. Among "tops", 77% (95%CI 69–84) presented with primary syphilis and 23% (95%CI 16–31) presented with secondary syphilis. Whereas among "bottoms", 54% (95%CI 49–59) presented with primary syphilis and 46% (95%CI 41–51) presented with secondary syphilis. Among those with primary syphilis, 247 (73%, 95%CI 68–78) had a penile chancre and 77 (23%, 95%CI 19–28) had an anal chancre. In multivariate logistic regression, "bottoms" were more likely to present with secondary syphilis than "tops" (aOR 3.90, p<0.001), after adjusting for age, HIV status, and condom use.

Conclusion "Bottoms" more often presented with secondary syphilis compared to "tops", and most MSM who presented with primary syphilis had penile chancres rather than anal chancres. This suggests that MSM who have receptive anal intercourse may be more likely to overlook anal syphilis chancres, perhaps because these are located inside their anal canal. These men may benefit from additional strategies to improve the recognition of anal chancres.

Disclosure No significant relationships.

P765 ADDED VALUE OF *TREPONEMA PALLIDUM* PCR IN DIAGNOSING EARLY SYPHILIS

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10.1136/sextrans-2019-sti.823

Background Diagnosing an infection with *Treponema pallidum*, the causative agent of syphilis, is routinely based on serology. STD clinics routinely screen those with high-risk sexual behaviour, e.g. MSM, for syphilis. In case of an ulcus, swabs taken from the ulcer can be tested for *T. pallidum* by PCR. Here, we assessed the added value of PCR next to serology in primary syphilis.

Methods Retrospective data were analysed from patients of our STI clinic. Samples were taken from the genital ulcer for