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JOURNAL OF SEXUALLY TRANSMITTED INFECTIONS

Jack Batchelor

KISSING MAY BE AN IMPORTANT AND NEGLECTED RISK FACTOR FOR OROPHARYNGEAL GONORRHOEA: A CROSS-SECTIONAL STUDY IN MEN WHO HAVE SEX WITH MEN

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10.1136 May 2019

PREFACE

- An increase in NG cases among MSM is a substantial health concern worldwide.
- Antibiotic resistant NG isolates have increasingly been documented in many countries.
- It's posited that NG may become increasingly difficult to treat.
- Better evidence-based public health strategies are needed to prevent the spread of NG.
- Public health messaging typically focuses on the promotion of condom use because most NG is considered to be transmitted via penile-anal sex among MSM.

PREFACE

- A number of pieces of evidence suggest that transmission from oropharynx may be more common than previously thought.
- NG can be cultured from saliva, suggesting that the exchange of saliva between individuals may potentially transmit NG.
- This observation is supported by the observation that receptive oro-anal contact (ie, rimming) and saliva used for lubrication during anal sex are risk factors for anorectal NG.
- It has been proposed that NG can be transmitted through kissing, but kissing has always been neglected as a risk factor for NG transmission.

OBJECTIVE:

- To examine the association between kissing and oropharyngeal gonorrhoea among gay and bisexual men who have sex with men (MSM).
- To examine whether tongue-kissing either alone or associated with sex is a risk factor for oropharyngeal NG among MSM.

METHOD:

- Cross-sectional study conducted at Melbourne Sexual Health Centre.
- Targeted MSM attending a MSHC between March 2016 and February 2017.
- Information was collected via survey “The Kissing Survey”.
- All MSM who were eligible to complete the CASI were invited to complete the ‘Kissing’ survey. The survey took less than 2 minutes to complete.
- The Survey collected data on the number of the eligible participant’s male partners in the last 3 months.

METHOD:

- **Data was separated into three distinct categories;**
- **1.** Kissing-only (ie, no sex including no oral and/or anal sex)
- **2.** Sex-only (ie, any sex without kissing).
- **3.** Kissing-with-sex (ie, kissing with any sex).

*For the purpose of this study 'sex' was defined as oral or anal sex.

MEASUREMENT:

- Univariable and multivariable logistic regression analysis were performed to examine associations between oropharyngeal gonorrhoea positivity by NAAT and the three distinct categories.
- MSM was defined as men who have had any sexual contact with another man in the last 12 months.
- All specimens were obtained by FPU, anal and oral swabs - all tested via NAAT using Aptima Combo 2 Assay
- Transgender individuals were not eligible to participate in this survey.

RESULTS:

- In total 11,442 were invited to complete the survey.
- 4643 men (40.6%) completed the survey.
- 6,799 (59.4%) declined survey.
- 966 were excluded due to not meeting eligibility criteria;
 - Under 16 years of age
 - Did not test for oropharyngeal NG
 - Indeterminant results
 - Repeated responses in the 3 month period
 - Reported no kissing and no sex in the past 3 months.

RESULTS:

- 3677 men completed the survey and were tested for oropharyngeal gonorrhoea.
- Median age of those surveyed was 30 years (IQR 25-37).
- 57.1% (n=2098) were Australian born.

- 6.2% (n=229) tested positive for oropharyngeal gonorrhoea.
- 5.9% (n=201) tested positive for anorectal gonorrhoea.
- 2.7% (n=98) tested positive for urethral gonorrhoea.

RESULTS:

- Participants had a mean number of 4.3 kissing-only partners, 1.4 sex-only partners, and 5.0 kissing-with-sex partners (in the preceding 3 months).
- Kissing-only and kissing-with-sex were associated with oropharyngeal gonorrhoea – but sex-only was not associated with same.
- The greater number of kissing-only partners or a greater number of kissing-with-sex partners were significantly associated with oropharyngeal gonorrhoea in both univariable and multivariable analyses.
- After adjusting for potential confounding factors, the odds of having oropharyngeal gonorrhoea was 1.46-fold (95% CI 1.04 to 2.06) for men with ≥ 4 kissing-only partners and 1.81-fold (95% CI 1.17 to 2.79) for men with ≥ 4 kissing-with-sex partners.

RESULTS:

- In contrast, the number of sex-only partners was not a significant risk factor for oropharyngeal in either univariable or multivariable analyses (3.0% vs 6% of the total population).
- Of the 52 (1.4%) men who only had kissing-only partners, the positivity for gonorrhoea at the oropharynx was 3.8%, at the anorectum 2.3%, and at the urethra was 0%.
- Of the 95 (2.6%) men who had sex-only partners, the positivity of gonorrhoea at the oropharynx was 3.2%, at the anorectum was 4.0%, and at the urethra was 4.3%.

CONCLUSIONS:

- The study provides some empiric evidence that gonorrhoea may be transmitted from one man's oropharynx to another man's oropharynx solely through tongue kissing.
- Kissing may be associated with transmission of oropharyngeal gonorrhoea in MSM, irrespective of whether sex also occurs.

STUDY LIMITATIONS:

- Selection bias may have occurred, given this study was conducted at a single urban sexual centre in Melbourne which may not represent the entire MSM population in Australia.
- 60% of MSM attended the centre declined to participate in the study. It's possible that sexual practices may have differed between those men who participated in the study and those who declined.
- The study did not measure the number of penile-oral sex or anal sex partners but included both as part of 'any sex'.

THOUGHTS FOR FUTURE CLINICAL GUIDELINES:

- The study found that MSM have similar numbers of kissing-only partners and kissing-with-sex partners.
- The study found younger men have more kissing-only partners than older men which suggests that younger men may be at significantly greater risk of oropharyngeal NG positivity.
- Should we be educating clients about the potential risk of kissing and oropharyngeal NG transmission during the 7 day 'no sex' period after medication administration?

EVIDENCE FOR A NEW PARADIGM OF GONORRHOEA TRANSMISSION: CROSS-SECTIONAL ANALYSIS OF NEISSERIA GONORRHOEA INFECTIONS BY ANATOMICAL SITE IN BOTH PARTNERS IN 60 MALE COUPLES.

Vincent Jasper Cornelisse, Deborah Williamson, Lei Zhang, Marcus Y Chen, Catriona Bradshaw, Jane S Hocking, Jennifer Hoy, Benjamin P Howden, Eric P F Chow, Christopher K Fairley.

- 2019;**95**:437-442.

PREFACE:

- Current public health strategies are based on the premise that NG transmission between men primarily occurs during condomless penoanal sex, with a lesser role for oropenile sex.
- Urethral NG is usually symptomatic, symptoms occur within days, and in countries with accessible healthcare most cases are treated expeditiously and hence have limited opportunity to contribute to onward transmission.
- This article attempts to explain the high prevalence of NG where incident NG among MSM is driven mainly between throats (tongue kissing) with onward transmission by saliva to partners' anus and/or urethra during oroanal or oropenile sex.
- Thus postulating that the urethra is primarily a recipient of infection, and not a major source of onward transmission.

OBJECTIVE:

- Aims to investigate the transmission dynamics of NG using the results from 60 male couples.
- By assessing anatomical site-specific NG infections in both partners in male couples, from which to infer the likelihood of NG transmission between partners' throat and anus, and between throats.

METHODS:

- Cross-sectional retrospective analysis of 60 male couples who attended Melbourne SHC together between March 2015 and June 2017. .
- Viable participants were identified via Computer-assisted Self-interview (CASI).
- Couples were only included only if partner was attending the clinic the same day.
- The study only included couples where both men had NG NAAT results available for all three anatomical sites (throat, anus, urethra).
- For couples where both men had a culture isolate available - Isolates obtained from culture-positive infections underwent whole genome sequencing to assess phylogenetic relatedness between partners.

RESULTS:

- During the study period 417 couples presented together.
- In 315 couples both men had tested for NG at all three sites (throat, anal, urethra).
- In 60 couples at least one man in each couple tested positive for NG.
- These 60 couples formed the basis of the analysis.
- 85 men in total tested positive for NG.
- 63 had throat NG, 48 had anal NG, and 25 had urethral NG (many had multisite NG)
- Of the 25 men with urethral NG 88% were symptomatic with a median duration of Sx of 3 days.

KEY FINDINGS:

- NG culture Isolates had very high phylogenetic relatedness between partners.
- Of the 25 men with urethral NG, 18 had a partner with throat NG and 19 had a partner with anal NG.
- Of 48 men with anal NG, 25 had a partner with throat NG.
- In the absence of urethral infection, when one man in a couple had throat NG, his partner commonly had throat NG (23%).
- And in the absence of urethral infection, when one man had anal NG his partner commonly had throat NG (34%).

CONCLUSIONS:

- Observed gonorrhoea positivity when urethral infection is absent supports a new paradigm of NG transmission, where the throat is a major source of NG transmission between men.
- This transmission could be through tongue kissing, oroanal sex and saliva used as lubricant.
- Public health messages may need to address the risk of saliva exposure during sex.

LIMITATIONS:

- The questionnaire asked by the participants does not define 'your partner' and there was no information on the frequency or nature of the couples sexual contact, nor whether their last sexual contact was with that partner.
- The study did not collect data on 'kissing-only' partners.
- It is difficult to infer the direction of transmission from cross-sectional data, which is ideally demonstrated in a longitudinal analysis.
- There was no data on sexual on NG infections on sexual partners external to the couples - although highly related NG isolates via phylogenetic analysis suggest a high likelihood of in-couple transmission.

MYCOPLASMA GENITALIUM AND THE MEANS TO OTHERS' ENDS.

- Editorial by Kilian Patrick Dunphy.

THE BRITISH ASSOCIATION FOR SEXUAL
HEALTH AND HIV (BASHH) GUIDELINE ON
THE MANAGEMENT OF M.GEN (2018)
CONTAINS THE FOLLOWING ADVICE;

- Current asymptomatic partners (including non-regular partners where there is likely to be further sexual contact and risk of reinfection) of individuals with disease caused by M.gen infection should be tested and/or offered epidemiological treatment. This is to reduce the risk of reinfection in the index case.

SHOULD WE BE TREATING ASX
CONTACTS OF M.GEN?

- There are increasing reasons to question the appropriateness of epidemiological treatment in this context.
- Should we ethically be treating asymptomatic contacts of M.gen with a course of antibiotics when the scales are significantly more likely to cause adverse short and possible unknown long-term side-effects and harm to the contact, rather than merely for the benefit of the index?

UNCLEAR REASONING FOR TREATING ASX CONTACTS

- We do not know the risk of such sequelae arising in individuals with M.gen who demonstrate no symptoms.
- Yet the BASHH guidance simultaneously advises that asymptomatic individuals should generally not be tested.
- Which infers the ONLY reason for treatment of the asymptomatic contact is for the benefit of the index.

ARE WE AT RISK OF USING PEOPLE AS A MEANS TO THE ENDS OF OTHERS?

- One of the founding fathers of modern philosophy Immanuel Kant wrote – that it is never acceptable to treat others solely as means to the ends of others.
- The age-old medical aphorism ‘Primum non nocere’ – First, do no harm. Are we possibly causing harm to an individual in the pursuit of the greater (public health) in spite of ineffective treatment options and the potential for increasing antibiotic resistance?

CONSENT AND RISKS

- Thus far, in offering treatment to ASx contacts of M.gen we are offering neither a risk-free nor indeed a reliably effective path to eradication.
- In promoting medical therapy, to those without evident medical problems, we need to be very clear that such individuals will not pay an unacceptable price for the purported health benefits of others.
- Informed consent on this basis requires a clear exposition of the potential risks and benefits of treatment with an accurate account of the necessity for such an intervention.

IS M.GEN THE NEW CT?

- Comprehensive systematic review and meta-analysis, Cina et al reached the conclusion that M.gen is not the new CT.
- Bacterial loads for M.gen are commonly 100-fold lower than for CT.
- Horner and Martin cite evidence for the hypothesis that transmissibility for M.Gen is 10%-40% lower than that of CT.
- Evidence is plausible that a female partner of a man with M.Gen urethritis may have a less than 50% chance of also being infected, less than 10% chance of developing Sx, and if positive was likely to clear any such infection spontaneously within 18 months.
- On this understanding could it be a perfectly rational decision for an ASx partner to decline testing and treatment?

WHAT DO DO NEXT?

- Given that there is presently limited evidence of harm to ASx carriers
- Antibiotic escalation is much more likely to occur in the context of couples or networks (where the test of cure in at least one individual may remain stubbornly positive).
- Perhaps it would be more reasonable to treat the index patient (symptomatic with M.Gen) and allow for the re-emergence of symptomology (should this occur) once sexually activity with the partner resumes.
- As an alternative, further study and findings can be obtained if index patients be followed up by health advisers to assess what proportion ultimately merits partner intervention.