Meta-analysis of penile cancer: conceptual interpretations

Authors' reply

We thank Rama Jayaraj and colleagues for their interest in our Article, and their comments. In our systematic review and meta-analysis[1] of the prevalence of human papillomavirus in penile intra-epithelial neoplasia and cancer, we implemented the weights of individual studies by assuming random effects models. This specification was not included in the methods because we assumed it was an implicit procedure. So, the weighting issue was considered during all analyses and implemented by means of the metaprop and metareg functions of the *R* package meta.[2]

In meta-analyses, the assessment of publication bias is typically done with a funnel plot considering the effect sizes of interest against their standard errors. However, Hunter and colleagues[3] argue that this conventional funnel plot used to assess potential publication bias might not be suitable for meta-analyses of proportion studies with low proportion outcomes, as was the case in our study, which included some studies with zero prevalence of human papillomavirus or $p16^{INK4a}$ in penile intraepithelial neoplasia or cancer. Therefore, we did not present results about publication bias assessment based on funnel plots that might not have been appropriate, but we agree with Jayaraj and colleagues that consideration of publication bias is an important aspect of meta-analyses.

FLS has received speaker's fees and support for conference participation from Becton, Dickinson and Company. CM has received speaker's fees and support for conference participation from Sanofi Pasteur MSD. SKK has received speaker's fee from Sanofi Pasteur MSD and Merck, scientific advisory board fees from Merck, and an unrestricted research grant through her institution from Merck. The other authors declare no competing interests.

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1 Olesen TB, Sand FL, Rasmussen CL, et al. Prevalence of human papillomavirus DNA and p16INK4a in penile cancer and penile intraepithelial neoplasia: a systematic review and meta-analysis. *Lancet Oncol* 2019; **20:** 145–58.

2 Schwarzer G. meta: an R package for meta-analysis. *R News* 2007; **7:** 40–45.

3 Hunter JP, Saratzis A, Sutton AJ, Boucher RH, Sayers RD, Bown MJ. In meta-analyses of proportion studies, funnel plots were found to be an inaccurate method of assessing publication bias. *J Clin Epidemiol* 2014; **67:** 897–903.