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Smokeless tobacco – a substantial risk for oral potentially malignant disorders in South Asia

A critical appraisal of Khan et al's Smokeless Tobacco and Oral Potentially Malignant Disorder in South Asia: A systematic Review and Meta-analysis. *Nicotine & Tobacco Research*; 2017: 1-11

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Commentary

Oral cancer is ranked as the sixth most common malignancy in South Asia – with nearly 300,000 new cases diagnosed each year, accounting for one third of the total cancer burden in India.¹ Tobacco and alcohol consumption are the most significant risk factors for oral cancer world-wide, however, in South Asia smokeless tobacco (SLT) accounts for a greater attributable risk.² Smokeless tobacco is any form of tobacco consumed through the mouth or nose that does not involve burning the product - this includes betel quid, paan, gutkha, chewing tobacco and other such products. While only 1.6% of men and 0.5% of women in the United Kingdom use SLT,³ 90% of SLT use is concentrated in South Asia⁴ with the practice viewed as being socially and culturally acceptable.⁵

Oral potentially malignant disorders (OPMDs) are clearly defined in this study as any chronic lesion / condition found in the mouth that have the potential to transform into oral cancer;⁶ this includes: leukoplakia, erythroplakia, oral sub-mucous fibrosis (OSMF), lichen planus, actinic keratosis, discoid lupus erythematosus and palatal lesions among reverse smokers.⁷ The prevalence of OPMDs worldwide ranges from 1 to 5%;⁸ and their potential for them to undergo malignant transformation ranges from 1 to 36%, depending on the subtype of OPMD.⁹ This study seeks to quantify the risk associated with SLT use and the development of OPMDs in South Asia.⁷

Fifteen articles corresponding to eighteen studies, pertaining to three of the seven countries in South Asia, were included in the meta-analysis. A substantial risk association between SLT use and OPMDs was estimated from the pooled data (meta odds ratio, mOR = 15.5; 95% CI, 9.9-24.2). The challenge in meta-analysis of published studies is taking into account confounders – analysis of the subgroup of studies here that had adjusted for smoking and alcohol found limited attenuation with a high-risk association remaining (mOR 13.1; 95%CI 8.3-20.7). OSMF was the found to have the highest risk association with SLT use (mOR= 20.0; 95% CI, 12.3-32.5), and leukoplakia the lowest (mOR 4.33; 95%CI 1.4-13.2). Of the range of SLT products included, betel quid with tobacco carried the highest risk association for developing OPMDs (mOR = 16.1; 95% CI, 7.8-33.5); and women were found to have a higher risk association (mOR = 22.2; 95% CI, 9.1-54.1) than men (mOR = 8.7; 95% CI, 2.1-34.8).

Overall, this was a well conducted systematic review and meta-analysis conforming to the meta-analysis Of Observational Studies in Epidemiology (MOOSE) reporting guidelines.¹⁰ The search strategy was thorough, but perhaps could also have included seeking unpublished data or contacting authors. The reviewers assessed the quality of the included studies using the National Collaborating Centre for Methods and Tools, McMaster University's "Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies"⁷, and this identified one of the major limitations of this meta-analysis – i.e. the quality of included studies were either of moderate (n=12) or weak (n=6) quality;⁷ no studies were found to have strong qualities when assessed. Moreover, the quantification of SLT exposure in these studies was also identified by the authors as a problem and

limitation – particularly the lack of a clear definition for “ever” exposure may cause over estimation of the true risk as an individual who has used SLT once was categorised in the same group as someone who used SLT for 20 years.⁷

This review is a good baseline description of the extent of epidemiological research into SLT and OPMD risk in South Asia. It points to the need for further research into this risk association, and indeed for the risk associations between SLT, OPMD and oral cancer. However, more importantly, it highlights the importance for research into SLT cessation in Asian populations and communities as a means to prevent oral cancer worldwide.

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