Smoking and alcohol survival analysis in head and neck 5000

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Scientific Outline

Summary

Lifestyle plays an important role in the development of head and neck cancer (HNC). Tobacco and alcohol use are the main risk factors for HNC, and together account for around 75% of all cases. A subset of head and neck cancers, primarily cancers of the oropharynx, are acquired through oral infection with human papillomavirus (HPV). People with HPV-positive tumours are frequently younger than those with tobacco and alcohol-mediated cancers and experience significantly better outcomes.

Previous work suggest that tobacco use, in addition to its role in the aetiology of HNC, also predicts poorer clinical outcomes including reduced treatment efficacy, increased risk of secondary primary tumour development and increased risk of death. Studies which have examined the association of alcohol exposure pre-diagnosis and survival in HNC have produced conflicting results. It is also unclear whether drinking and smoking behaviours before diagnosis influence clinical outcomes in HPV-positive tumours.

The aims of this study are: firstly, to investigate the influence of tobacco and alcohol use before diagnosis on survival outcomes in squamous cell carcinomas of the head and neck cancer, and secondly, to stratify this by tumour site and HPV status to see whether the effects of tobacco and/or alcohol consumption vary by tumour type.

Key words: squamous cell carcinoma, head and neck cancer, tobacco, alcohol, human papilloma virus (HPV), prognosis, outcomes, Head and Neck 5000.

Methods:

Primary analysis: The main analysis will be restricted to participants with squamous cell carcinomas. The primary outcome of interest is overall survival, defined as time from enrolment into the study to death due to any cause. Cox proportional-hazards models will be used to estimate hazard ratios, including adjustment for proposed risk factors. Secondary endpoints include second primary tumour development and distant metastasis at 3 years (if sufficient events have occurred).

Supplementary analyses:

I will run additional analyses in which I will stratify participants by tumour site and HPV status in order to evaluate cancer site-specific risks. I will also create a pre-diagnosis tobacco exposure variable which captures participants smoking duration and dose, based on self-reported smoking behaviours.