

headandneck 5000

Metabolic signatures of prognosis in Head and Neck 5000.

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Scientific Outline

Summary

Cancer initiation and progression is associated with profound changes in metabolism that support continued growth and proliferation. We will use an NMR-metabolomics approach to examine whether circulating serum metabolite levels, measured before the onset of cancer treatment, are associated with survival in people diagnosed with oropharyngeal cancer (OPC), in Head and Neck 5000.

Metabolomics is a powerful and highly reproducible technology that enables the global assessment of hundreds of metabolites in a biological sample simultaneously. We will examine the association of over 200 baseline serum metabolic traits, including various lipoproteins subclasses, fatty acids, amino acids and glycolysis-related metabolites, with OPC survival. Analysis will be adjusted for a range of clinical, biological and lifestyle factors that could potentially confound associations, including tumour stage, body mass index (BMI), comorbidity and smoking status. We will further stratify models by human papilloma virus (HPV) serological status, to assess whether infection with HPV modifies any associations of metabolites with OPC survival.

From a clinical perspective, identifying metabolic markers that are associated with poor survival outcomes could enhance the accuracy of prognostication and potentially aid clinical decision making. The findings of this study could also provide a deeper understanding of the molecular aetiology of OPC and provide new targets for therapeutic intervention.

Key words: oropharyngeal cancer, human papilloma virus, metabolomics, biomarker, prognosis, NMR-spectroscopy.