

Scent of Lynch

Prof J.A.Covington
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Introduction

Lynch syndrome is a genetic disorder that is carried by around 1 in 300 of the population. This genetic disorder results in a much greater chance of developing several different cancers. The most likely cancer is colorectal, though there is also an increased risk of developing ovarian, pancreatic, prostate, kidney and brain cancers. Symptoms of Lynch syndrome is where multiple relatives from the same side of the family are diagnosed with colon, endometrial, ovarian, and/or other cancers. Lynch syndrome sufferers also are more likely to develop cancer at a young age and can have multiple cancers throughout their lifetime.

Lynch syndrome sufferers account for 3% of all colon cancers. As this group is well known to be susceptible to cancer, they are regularly screened through endoscopy and any growths removed. Even with this high surveillance, 8% of these patients still develop cancer over a 10-year period. Furthermore, this surveillance is expensive, unpleasant for the subject and has a morbidity rate linked to the procedure. For this reason, there is a need for a rapid, simpler and non-invasive means to monitor and diagnose this high-risk group.

Project Description

This project is being driven by AUMC hospital in Amsterdam. Its aim is to use the odours emanating from human waste material, specifically urine and stool, as a means to diagnose colon cancer in Lynch syndrome sufferers. Odour analysis is a simple and rapid method that has been extensively applied to cancer diagnosis, with Warwick University being on the world leaders in this field.

In this study, 200 adult patients with Lynch syndrome will be recruited through the surveillance screening group. They will be asked to provide two samples a year on their regular visit. These samples will be shipped to Warwick University for subsequent odour analysis. These patients will fall into three groups, those with cancer, those with cancer like growths and healthy controls. Using these subjects, we will be able to understand the differences in odours/biomarkers between these different group and how they change with treatment.

Project Progress

At this point in time, all of the subjects have been recruited and around 200 samples have been shipped to the UK for analysis. A further 400 samples have been collected since then and these will be shipped to the UK in Q2 of 2023. These will be analysed and then we will be able to investigate the differences between the Lynch syndrome patients at different stages, with cancer, with growths and healthy controls. We hope to identify key biomarkers of cancer that in the future can be used for the development a new test for high-risk Lynch syndrome patients.