PTU-044 TO STENT OR NOT TO STENT IN MALIGNANT LARGE BOWEL OBSTRUCTION

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Introduction Self expanding metallic stents (SEMS) can resolve obstruction due to colorectal cancer (CRC), enabling subsequent elective rather than emergency surgery. This study compared the outcomes after stenting and subsequent elective surgery versus emergency surgery (ES) for obstructing CRC.

Methods Prospectively collected data from a consecutive series of 153 patients with large bowel obstruction secondary to CRC, presenting to a single NHS Trust from April 2010 to March 2017, were retrospectively analysed. Of these, 41 (26.8%) had stenting as a bridge to surgery (SBTS) followed by elective surgery and 112 (73.2%) had ES. Primary outcomes were mortality rates after surgery at 30 days, 90 days and 1 year. Secondary outcomes were the rates of stoma formation and anastomotic leak (both clinical and radiological).

Results Thirty-day mortality was 7.3% with SBTS and 12.5% with ES. Ninety-day mortality was 7.3% with SBTS and 17.9% with ES. One-year mortality was 19.5% with SBTS and 32.1% with ES. The anastomotic leak rate was 7.1% with SBTS and 14.0% with ES. The rate of stoma formation was 39.0% with SBTS and 33.0% with ES. With cancers proximal to the splenic flexure excluded, stoma rates were 38.5% with SBTS and 54.2% with ES.

Conclusions Without adjustment for confounding variables superiority of SBTS over ES cannot be inferred. But these results suggest SBTS can be a safe alternative to ES and may offer advantages in respect of stoma and leak rates.

PTU-045 URINARY VOC AND FAECAL MICROBIOME CHARACTERISATION OF COLORECTAL CANCER PATIENTS, THEIR FIRST-DEGREE RELATIVES AND SPOUSES

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Introduction Colorectal cancer (CRC) is the one of the commonest causes of cancer worldwide, and, subsequently, there has been a drive in recent years to identify a non-invasive CRC biomarker. Volatile organic compounds (VOC) detection in various bodily substances, by means such as mass spectrometry and electronic nose, have gained particular interest. CRC patients have been shown to be distinguishable from healthy controls using urinary VOC detection in several studies, including two published by the research group at UHCW and the University of Warwick.^{1 2} There has also been significant research into the role that the intestinal microbiome plays in health and disease in humans.

The aim of this study was to characterise the urinary VOC and stool microbiome profiles of CRC patients, their spouses and first degree relatives with the goal of determining whether environmental and genetic controls could be distinguished from the CRC subjects using urinary VOC and faecal microbiome profiling.

Methods 56 CRC subjects, 45 spouses and 37 relatives were recruited. Sample analysis was performed using an LC-FAIMS-MS apparatus to detect urinary VOCs, whilst an Illumina Miseq platform was used for 16 s RNA sequencing. Urinary data was processed and analysed using a 5-fold cross-validation with sparse logistics regression and random Forrest statistical classifiers. Microbiome data was analysed using standardised uPARSE and QIIME pathways. Comparisons were also made between pre-treatment and post-treatment CRC samples (n=23) to determine if there was any change in VOC or microbiome profiles after treatment.

Results The urinary VOC profiles of CRC subjects could be distinguished from both sets of healthy controls using both classifiers. Achieved sensitivities were 63%–69%, specificities 64%–69% and AUC 0.71–0.72. No statistically significant differences could be found in the urinary VOC profiles of pre-operative and post-operative samples.

Microbiome analysis revealed over 1300 operational taxonomic units (OTUs), with a similarity of >93% between CRC samples and control groups, with significantly different bacterial abundances identified in 82 OTUs, mainly Clostridiales. Pre-treatment and post-treatment sample analysis revealed differences of 17 (3%) and 22 (4%) OTUs at 3 and 6 months respectively, again principally Clostridiales.

Conclusions This study provides further validity of the use of urinary VOCs as a non-invasive biomarker for CRC detection, demonstrated here against genetic and environmental controls. The LC-FAIMS-MS technology is a variant of the previously utilised FAIMS, although exact chemical identification is not possible due to a lack of a validated database. Microbiome analysis showed broadly similar bacterial profiles between the various groups, will subtle differences in some families, such as clostridiales, and a restricted CRC profile, compared to the healthy controls.

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PTU-046 NOVEL LACTOFERRIN-LOADED ALGINATE MICROGELS DISPLAY ANTI-CLOSTRIDIUM DIFFICILE DEFENCE PROPERTIES IN VITRO

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Introduction We previously reported that some forms of bovine lactoferrin (bLf) are effective in substantially delaying *C. difficile* growth and preventing production of toxins in a human *in vitro* gut model of *C. difficile* infection (CDI). The aim of the present study was to develop lactoferrin-loaded alginate microparticles coated with high molecular weight chitosan for enhanced protein stability, and to subsequently evaluate their anti-*C. difficile* defence properties *in vitro*.