AB068. SOH22ABS116. Identification and investigation of a novel four miRNA expression assay to aid colorectal cancer diagnosis

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Background: One third of patients diagnosed with colorectal cancer (CRC) present with advanced disease and disease control remains a challenge. The identification of novel diagnostic biomarkers to facilitate earlier diagnosis is crucial to enhance oncological and survival outcomes. The aim of the current study was to identify miRNAs capable of distinguishing CRC from tumour-associated 'normal' (TAN) tissue and to a create miRNA oncogenic signature to aid CRC diagnosis.

Methods: Tumour and TAN were extracted from 74 patients during surgery for CRC. RNA was isolated and target miRNAs were quantified using real-time reverse transcriptase polymerase chain reaction. MiRNA targets were identified through literature review. Descriptive statistics and regression analyses were performed as appropriate to identify two miRNA targets capable of differentiating CRC from TAN, which were compared with two endogenous controls. Area under the curve (AUC) in receiver operating characteristic (ROC) analysis were performed.

Results: Using multivariable analyses, increased expression of miR-31 (β-coefficient: 2.431, SE: 0.715, $P<0.001$) and reduced expression of miR-150 (β-coefficient: –4.620, SE: 1.319, $P<0.001$) independently predicted colorectal tumour from TAN. AUC generated from the ROC curve analysis was generated using binary logistic regression analysis. The highest AUC generated was 85.9 [95% confidence interval (CI): 79.3–92.4, $P<0.001$] for miR-31 and 80.8% (95% CI: 72.8–88.9%) for miR-150.

Conclusions: This study identified a four-miRNA signature capable of distinguishing CRC from TAN with high diagnostic test accuracy. These results are promising in informing CRC diagnoses for prospective patients.

Keywords: Colorectal cancer (CRC); diagnostics; microRNA; personalised medicine; precision oncology

Footnote

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.