



AB058. 126. Observing peri-operative cell-free DNA dynamics may enable identification of patients at risk of early recurrence in colon cancer

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Background: This study explored the dynamics of cell-free DNA (cfDNA) in the immediate perioperative period in colon cancer, in an attempt to analyse if the perioperative dynamics of cfDNA could identify those at risk of early recurrence in colon cancer.

Methods: Patients with resectable colon cancer undergoing elective curative surgery were screened for inclusion. Blood samples were taken at seven time points: pre-operatively (PreOp); post-operatively at 3 hours (3 Hrs), 6 hours (6 Hrs), 24 hours (24 Hrs), 48 hours (48 Hrs), day 3 (D3), and day 5 (D5). Acute phase reactants were measured. cfDNA was extracted (QIAGEN® QIAmp circulating nucleic acid kit)

and measured (Thermofischer® Nanodrop, version 3.8). Minimum 2-year follow-up was performed and findings were compared between those with disease recurrence (DR) or disease-free (DF).

Results: Twenty patients were studied, three developed recurrence. Eighty-five percent (n=18) of cases were completed laparoscopically. All patients had an R0 resection and median nodal harvest was 17 nodes. The max cfDNA level was observed pre-operatively with significant decline following removal of primary tumour burden. Significant consistent association between cfDNA levels and acute phase reactants was not observed. From 48Hrs post-op a significant difference in cfDNA levels emerged between those who developed DR and those with DF (DR 202.5±21.75 vs. DF 39.12±12.62, P=0.012) and continued to D3 (DR 403.3±52.3 vs. DF 57.57±24.66, P=0.009) and D5 (DR 846.7±57.26 vs. DF 62.94±27.90, P=0.001).

Conclusions: A significant difference in cfDNA levels from 48Hrs post-op may serve as an important biomarker to identify those at risk of early recurrence in colon cancer.

Keywords: Colorectal cancer; perioperative; cell-free DNA (cfDNA); liquid biopsy; cancer outcomes; recurrence

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