EP-334 The Impact of Combined DNA Repair and Oncogene Mutations in Colorectal Cancer Survival

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**Aims:** To examine the coexistent effect of either KRAS or BRAF gene status with MMR gene status on patient outcomes in a rural population of colorectal cancer patients.

**Methods:** Using a colorectal cancer database, results for patient mutation status for mismatch repair genes and other oncogenes, obtained by DNA sequencing and immunohistochemical analysis, were assessed to see if there were significant differences in survival probability in patients with and without single and combined risk factors. Kaplan-Meier survival analyses were performed to examine overall survival probability in the different groups of patients.

**Results:** Comparison of survival outcomes in patients with and without KRAS and MLH1 mutations showed a significant difference (p=0.018). Pairwise analysis reveals that this difference is mostly between the group with wild-type status for both genes and a patient with mutant KRAS and EGFR status with wildtype MLH1 status (p=0.062 with bonferroni correction). Combined KRAS and PMS2 status results in a borderline insignificant (p=0.056) survival difference as well. The effects of mutations in other combinations of oncogenes, as well as sex or tumour sidedness and mutation statuses, were not significant on survival probability.

**Conclusions:** These preliminary results should be interpreted with caution owing to the relatively small sample size. This study supports previous findings that mutant oncogenes, combined with altered MMR genes can be predictive of colorectal cancer survival outcome.