AB066. Elucidating the circulating and tumour-specific immune populations in a cohort of colon cancer patients

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Background: Successful immunotherapeutic intervention could be enhanced by understanding the immune cell component of the tumour microenvironment. The aim of this study was to characterise intra-tumoural immune cell populations in a cohort of colorectal cancer patients and correlate the frequency of key immune cell subsets with clinical/pathological findings

Methods: Fresh biopsy and resection samples were removed from colorectal cancer patients (n=5) and processed to single cell suspensions following pathological inspection. Informed consent was obtained from all patients prior to sampling. Single cells were incubated with fluorochrome-conjugated monoclonal antibodies against the main immune cell subset-distinguishing surface proteins; namely, CD4 (T cells), CD8 (T cells), CD56 [natural killer (NK) cells], CD11b (macrophages) and CD11c [dendritic cells (DCs)]. Frequency (%) of these immune cells was analysed by flow cytometry (using a BD FACSCanto II).

Results: Immune-profiling was performed on centre and leading edge colorectal tumour tissue, with non-cancerous adjacent normal tissue serving as a control. Comparison of infiltrating immune cells between these 3 tissues in a patient with a mucinous tumour (60%) at stage T4N0 revealed comparable levels of CD11b+ macrophages (14.49–18.45%), CD11c+ DCs (<1%) and CD56+ NK cells (1.03–1.34%). CD4+ and CD8+ T cell frequencies, however, differed considerably. Centre tumour: 23.6% CD4+, 32.05% CD8+; leading edge: 12.4% CD4+, 17% CD8+ and normal: 10.27% CD4+, 3.25% CD8+. Degree of tissue differentiation also yielded insights with moderately differentiated adenocarcinomas having comparable frequencies of all 5 immune cell subsets in centre tumour samples.

Conclusions: Intra-tumoural immune profiling coupled with pathological findings has potential prognostic benefit

Keywords: Tumour microenvironment; colorectal cancer; immune cells

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