00211 Role of Ki-67 in Asian Triple Negative Breast Cancers: A Novel Combinatory Panel Approach

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Aims: Ki-67, a proliferation marker, is widely adopted in the pathological evaluation of cancers to assess aggressiveness, but its role is not yet firmly established in triple negative breast cancer (TNBC). We aimed to quantify and localize Ki-67 expression in both the epithelial compartment and immune cells in TNBC, evaluating its association with clinicopathological parameters and survival outcomes.

Methodology: 56 TNBCs diagnosed between 2003 and 2015 in Singapore General Hospital were recruited for this study. Powered by state-of-the-art-7-colour multiplex immunohistochemistry technology (M-IHC), tissue microarrays (TMAs) were stained to assess the abundance, density and spatial distribution of Ki-67+ tumour cells and immune cells which were co-decorated with cytokeratin (CK) and leucocyte common antigen (CD45) respectively, and all results were correlated with clinicopathological parameters and disease outcomes.

Result: Multivariate analysis showed that every incremental 5% Ki67 scoring of TNBC was correlated with significantly worse disease-free survival (DFS) after adjusted to patient age, grade, tumour size and lymph node stage (HR = 2.70; 95% CI 1.30 - 5.60, p=0.008) regardless of the colocalization with CK or CD45. Furthermore, every incremental 5% of the Ki67 scoring within the CK+ tumoural compartment predicted poorer DFS (HR = 1.78; 95% CI 1.13 - 2.81, p=0.012).

Conclusion: Multivariate analysis identified Ki-67 protein expression as a significant independent factor for decreased DFS in TNBC. The evaluation of Ki67 expression on tumour cells and immune cells by using M-IHC is a novel approach. Future work includes validation in a larger cohort, comparison with conventional IHC and studying the correlation with gene expression data of Ki67.