THE ASSOCIATION OF GLYCOPROTEOMICS AND RADIOMICS WITH RENAL CELL CARCINOMA CANCER SPECIFIC SURVIVAL: AN ADJUNCT EVALUATION FOR SMALL RENAL MASSES

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Introduction: Use of molecular testing and biomarkers for renal cell carcinoma has yet to be realized and adequately evaluated. This study plans to evaluate how glycoprotein markers can improve the use of standard imaging modalities like computed tomography (CT) or magnetic resonance imaging (MRI) and provide additional information on prognostication and progression free survival in patients with clear cell renal cell carcinoma (ccRCC). Outcomes of interest include understanding the utilization of glycoprotein markers and imaging together to enhance post-operative surveillance.

Methods: A prior study at our institution collected plasma samples from 77 patients with ccRCC lesions and found that specific glycoproteins significantly correlated with progression free survival following nephrectomy. In light of that evaluation, our study aims to evaluate pre-operative imaging from those 77 patients using CT or T1-weighted MRI alongside plasma glycoprotein results. Imaging variables collected included tumor size, Mayo Adhesive Probability (MAP) score, and lesion characteristics including presence of central scar and calcifications. The MAP score is an image-based scoring system that numerically quantifies characteristics of the renal mass and surrounding perinephric fat. It was calculated by a single independent reviewer by measuring posterior renal fat thickness at the level of the renal vein (<1 cm =0 points, 1.1–1.9 cm =1 point, >2.0 cm =2 points) and staging of stranding in the perinephric fat on the ipsilateral side of the renal mass (0= no stranding, 2= thin mild stranding, 3= diffuse stranding). The two numbers are added together to provide a MAP score of 0-5. Data on presence or absence of specific glycoproteins was previously collected for each patient.

Results: Of the 77 patients, 70 patients had appropriate pre-operative imaging available for evaluation. 46 (66%) patients were male and 24 patients were female (34%). Median age was 64 years with a range of 42-84 years. Full statistical analysis is pending to assess how imaging characteristics and glycoprotein markers used together can impact prediction of progression free survival and prognostication of ccRCC masses.

Conclusion: Preliminary results demonstrate that the field of molecular biomarkers for renal cell carcinoma deserves further evaluation. Even if the use of glycoproteomics in conjunction with pre-operative imaging fails to improve prognostication, our institution has determined promising utility of glycosylated peptides for the future of ccRCC treatment and post-operative surveillance.