Influence of common comorbid conditions on a 17-gene assay for prediction of adverse pathology in clinically low-risk prostate cancer.

Meeting:
2017 Genitourinary Cancers Symposium

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Background: Well-validated molecular biomarkers can improve risk stratification in newly diagnosed PCa. It is important to demonstrate that biomarkers are not influenced by common clinical conditions. A 17-gene biopsy-based RT-PCR assay (Oncotype Genomic Prostate Score, GPS) has been validated as an independent predictor of adverse pathology and biochemical recurrence after surgery. We sought to explore the association between comorbid conditions and GPS. **Methods:** We examined the association between GPS and obesity (OB), diabetes mellitus (DM), hypertension (HTN), hypercholesterolemia (HC), coronary artery disease (CAD) and Low Testosterone (Low T) in a cohort of surgically treated men with clinically low-risk PCa. All men were seen and treated at Madigan Army Medical Center or Walter Reed National Military Medical Center. Diagnoses were abstracted from the electronic medical record. OB was defined as body mass index (BMI) > 30 kg/m^2. Low T was defined as total T < 300 ng/mL. Student's T test and ANOVA were used to assess differences in GPS between the groups of men with or without relevant diagnoses. **Results:** GPS results were available in 402 patients; 389 (97%) had BMI data. Pre-treatment serum testosterone (T) levels were available for 120 patients. There were no significant differences in mean GPS between men with or without OB, HTN, HCL, DM, and low T ($p > 0.05$). This relationship persisted when men with no vascular risk factors were compared to men with any vascular risk factor (DM/HTN/HCL) and/or with diagnosed coronary artery disease. There was a modest but statistically significant inverse correlation between GPS and continuous serum T ($r = -0.18$; $p = 0.049$). **Conclusions:** Comorbidities that are common in older men with prostate cancer do not appear to influence GPS results. Although Low T was not associated with GPS, there was a weakly negative association between GPS and continuous T. This may reflect the more aggressive PCa phenotype that has been reported in patients with progressively lower serum T.