

Elevated PSA is Associated with Decreased Physical Function in Men with Prostate Cancer

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ABSTRACT

Studies have reported an association between cortisol and fatigue in multiple clinical populations, including prostate cancer (PCa). Treatment options for men with PCa, such as androgen deprivation therapy (ADT), come with a wide variety of adverse effects, including cancer-related fatigue, which greatly impacts quality of life (QoL). **PURPOSE:** Conduct a preliminary analysis on the association between cortisol, fatigue and QoL in men with PCa. **METHODS:** This study is part of an ongoing study to determine the impact of PCa and PCa treatment on fatigue and QoL approved by the University of Texas Health Science Center at San Antonio Institutional Review Board. Twenty-one men (age: 69.1±11.55; BMI 28.99±4.78) with PCa were recruited from the Urology Clinic at the Medical Arts and Research Center in San Antonio, Texas. Participants provided ~2 mL of saliva for cortisol quantification using the passive drool technique. Saliva was immediately placed on ice and transferred within 4 hours to a freezer at -80°C until analysis. Cortisol was quantified using a commercially available salivary cortisol ELISA assay kit (Salimetrics, College Park, PA). Participants also completed three questionnaires: the Brief Fatigue Inventory, the Functional Assessment of Chronic Illness Therapy-Fatigue, and the SF-36. Pearson product moment correlation was performed to determine association between outcome variables. Student t-test was used to determine differences in cortisol, fatigue and QoL between men treated with ADT and men not treated with ADT. Significance was set at $p < 0.05$. **RESULTS:** Of the 21 participants, 9.5% (n=2) of participants had metastatic PCa, 4.8% (n=1) had castration-resistant PCa, 4.8% (n=1) had high-grade prostatic intraepithelial neoplasia, and 81% (n=17) had localized PCa. Twelve of the participants were being treated with ADT (57.14%). Significant correlation was observed between prostate specific antigen (PSA) and physical function ($r = -0.728$; $p = .001$), physical health ($r = -0.729$; $p = .001$), and emotional problems ($r = -0.765$; $p = .001$). No correlation was found between fatigue and cortisol levels. A comparison between groups revealed no significant difference in fatigue level between those on ADT versus those not on ADT. However, men not on ADT had a 28% higher average general health score. **CONCLUSION:** The results of this study suggest cortisol is not a strong physiological measure of fatigue in men with PCa. Furthermore, these preliminary data suggest that advanced cancer, as evident by elevated PSA, significantly impacts physical function and QoL in men with PCa. Further study for a more reliable biomarker of fatigue and interventions to improve QoL in men with PCa is warranted.