Predicting Acute Urinary Retention in Patients with Elevated Post Void Residuals

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Objective
● To perform a retrospective analysis to evaluate factors that may predict which men with elevated PVRs that were at increased risk to develop AUR

Methods
● A retrospective analysis was performed evaluating risk factors including age, prostate specific antigen (PSA), post void residual (PVR), transrectal ultrasound prostate volume (TRUS) of 44 male patients seen at Albert Einstein Medical Center who had 2 consecutive post void residual (PVR) urine determinations greater than 100 cc over a 6 month period

● Exclusion criteria: diabetes, prostate ca, urethral strictures, history of any transurethral surgery, and anticholinergic use

● Inclusion criteria: BOO diagnosis, 2 consecutive PVRs >100cc over a 6 month period

● All data was standardized and using this regression analysis, we evaluated patient age (mean age 58), post void residual volume (mean PVR 177ml), prostate specific antigen (mean PSA 1.65 ng/ml) and TRUS prostate volume (mean TRUS volume 36cc) with respect to the development of acute urinary retention (AUR) over a 24 month period

Results
● 4 of 44 patients (9.1%) developed acute urinary retention

● When analyzing all four factors, prostate volume was determined to be the only factor that was a statistically significant (p=.003) predictor of AUR

● Studying the coefficients, an increase in 1 standard deviation of prostate volume (12 cc) resulted in a 19.6% increased risk of developing AUR

● There was a strong correlation between increased PSA and larger prostate volume (0.787)

● When performing regression analysis using age, PVR, and PSA (excluding prostate volume), PSA was proven to be a statistically significant predictor of AUR (p=.007)

● Studying these coefficients, an increase in PSA by 1 standard deviation (1.377 ng/ml) resulted in a 12.3% increased risk of AUR

● Performing regression analysis with age, PVR, and prostate volume (excluding PSA) further increased the statistical significance of larger prostate volume resulting in AUR (p<.001)

Conclusions
● In patients with an elevated PVR, increased prostate volume was a statistically significant predictor of patients that will develop AUR within the next 24 months

● In the absence of a TRUS prostate volume, PSA was a statistically significant alternative to predict which patients will develop AUR

● Age and PVR were not a statistically significant predictor of AUR

● The information uncovered in this study may help influence which patients may need aggressive and early surgical intervention versus more conservative medical therapy to not only to manage patient’s symptoms but also to prevent the numerous sequelae of symptomatic BPH