

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

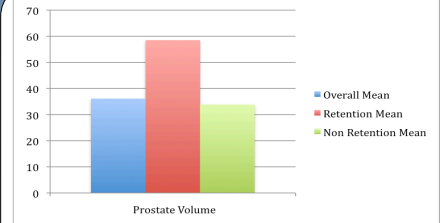
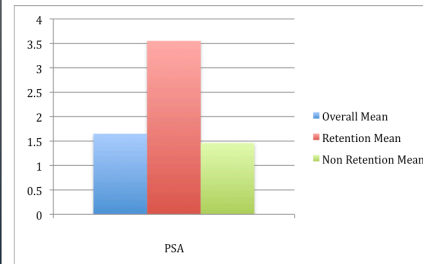
Methods

- 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)**

	Age	PVR	PSA	Prostate Volume
Overall (n=44)				
Mean	57.95	176.86	1.65	36.11
Standard Deviation	6.66	56.24	1.38	11.99
Min	45	100	0.4	20
Max	71	295	6.2	72
Retention Group (n=4)				
Mean	58.5	145	3.55	58.5
Standard Deviation	8.39	33.93	1.79	10.25
Min	50	122	2.0	48
Max	70	195	6.1	72
Non-Retention Group (n=40)				
Mean	57.9	180.05	1.46	33.875
Standard Deviation	6.59	57.32	1.20	9.69
Min	45	100	0.4	20
Max	71	295	6.2	56



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 an 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 the patient's symptoms but also to prevent the numerous sequelae of symptomatic BPH