

URODYNAMIC CHARACTERIZATION OF URINARY RETENTION IN ADULT MEN: A SPECTRUM OF PATHOPHYSIOLOGY

Hypothesis / aims of study

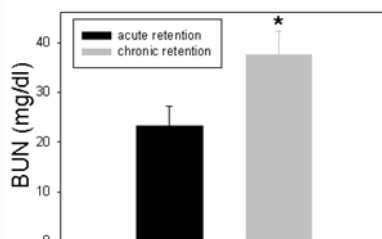
Urinary retention in adult men with LUTS is considered a deleterious consequence of long-standing outlet obstruction; however, retention can also occur in adult men for a variety of other reasons. It is generally assumed that all urinary retentions are similar in terms of pathophysiology and clinicians often resort to invasive outlet procedures some of which may lead to unsuccessful outcomes. In order to provide appropriate management, an accurate understanding of the detrusor contractile performance and outlet characteristics is required. It has also been observed that some patients with retention develop azotemia. In this study, we intend to describe the bladder and outlet characteristics and renal function of adult men who presented in retention.

Study design, materials and methods

91 veterans who presented for urodynamic studies (UDS) after a documented episode of retention were analyzed retrospectively. The UDS consisted of radiologic-assisted medium fill cystometry and voiding profilometry and/or pressure flow study if the patient was able to void. The parameters were cystometric capacity, bladder compliance, contractility and outlet resistance parameters if the patient voided. Clinical information was then collected through a chart review: age, BUN/Creatinine (at baseline, at the time of retention, and after resolution of the retention), volume of urine drained at retention, patient discomfort at retention, co-morbidities, and clinical intervention (surgical, catheter, or medical). Patients with neurological co-morbidities (MS, Parkinson's disease, history of CVA, cerebellar degeneration, spinal cord injury) were eliminated. Diabetes mellitus was not considered an exclusion criterion.

Results

After exclusions, 75 veterans were studied with a mean age of 72.6 (\pm 8.5) years. Twenty-eight patients (37%) did not demonstrate detrusor contractions during urodynamics. 35% of the group produced an isometric pressure of <70 cmH₂O and 73% had a compliance <30 cmH₂O/mL (mean compliance 28.7 ± 37.1). A significant difference was seen in the older (>75 y) versus the younger patients (<75 y) in regards to the BUN and creatinine measured at retention ($p=0.042$, $p=0.732$, respectively). Age was not a significant factor in baseline or return to baseline BUN/creatinine. Baseline renal dysfunction (creatinine ≥ 1.4) was also not a predictor of significantly worse renal dysfunction at retention or of inability to return to baseline. Patients who presented with an uncomfortable retention did show a correlation with poor compliance ($p=0.024$) but not with the volume of urine drained at the time of retention. Patients were divided into acute and chronic retentions based on clinical assessment. No significant differences were noted in bladder contractility, cystometric capacity, compliance or volume drained at time of presentation. However, BUN was significantly higher in patients with chronic retention.



Interpretation of results

Despite continuous drainage for several weeks, more than a third of the cohort showed no detrusor activation during urodynamics. This finding of detrusor acontractility may predict surgical failures following interventions designed to reduce outlet resistance. While an

increase in serum renal function measures is seen for men in retention, most men will return to baseline with relief of the obstruction.

Concluding message

The pathophysiology of urinary retention based on urodynamic characterization is not uniform in all patients. Some patients have acontractile bladders while others have a spectrum of contractility and outlet dysfunction. Thus, patients in urinary retention may benefit from urodynamic evaluation prior to implementing management strategies.

FUNDING: Department of Veterans Affairs, Medical Research Service