

Background

- Reported incidence of acute Postoperative Urinary Retention (PUR) varies: 2-29%
- No standard diagnostic definition of PUR exists
- Trial of void (TOV) routinely performed, but no standard protocol
 - Spontaneous bladder filling vs. backfill-assisted
 - Use of post-void residual (PVR)
- Reported risk factors for acute PUR after Mid-Urethral Sling (MUS) are heterogeneous
- Meekins' *et al.* proposed trial of void algorithm:
 - Sensitivity 98.9% and Specificity 94.9%
 - Negative Predictive Value 96.7%
 - Positive Predictive Value 97.4%

Objectives

- Determine KHSC rate of and risk factors for PUR in women following outpatient MUS.
- Validate Meekins' proposed algorithm in our MUS population by comparing it against the current KHSC definition of PUR.

Study Design

- Retrospective cohort study on women at KHSC undergoing MUS surgery between 2009-2016.
- Criteria for acute PUR was defined as a failure by the KHSC TOV algorithm (Figure 1) or a patient's return to the Emergency Department <48h of hospital discharge in PUR.
- PUR by our definition was considered the Gold Standard against which the Meekins' algorithm was compared.

Algorithms for Urinary Retention Diagnosis

Figure 1. Algorithm used at KHSC.

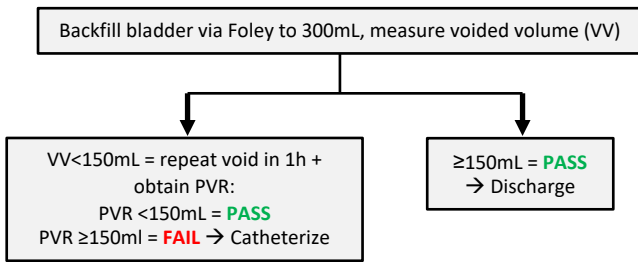
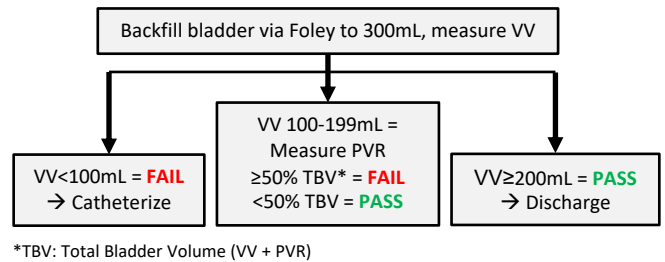


Figure 2. Meekins, *et al.*'s algorithm. (South Med J. 110(12):785-790, 2017)



Results

Figure 3. Flow chart diagram of chart inclusion/exclusion process.

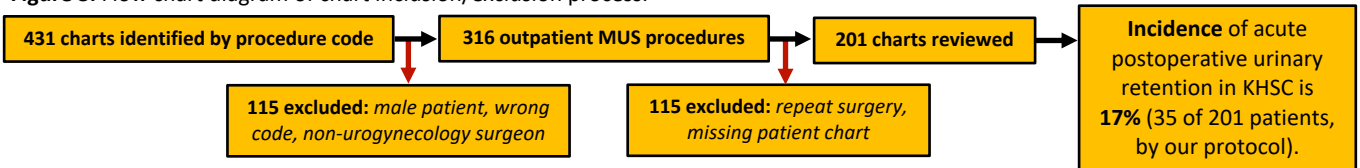


Table 1. Baseline characteristics of patients.

		N=201
Age (years), mean (SD)		54 (10)
BMI (kg/m²)*, median [IQR]		29 [26-34]
Caucasian Race[†], n (%)		113 (93)
Presenting Complaint(s)[‡], n (%)	Stress Incontinence	94 (54)
	Mixed Incontinence	67 (38)
	Other [‡]	77 (44)

Unknown values: *n=18, [†]n=79, [‡]n=26;

[‡]Some patients had multiple diagnoses, so % won't total 100.

Table 3. Classification of acute PUR by our centre's protocol compared with the proposed algorithm.

	PUR	No PUR	
Algorithm "Retention": VV < 100mL or 100-199mL with PVR of ≥ 50%	23	13	36
Algorithm "No Retention": VV ≥ 200mL or 100-199mL with PVR < 50%	1	129	130
	24	142	166

Table 2. Identified risk factors for PUR (based the KHSC definition.)

		PUR (N=35)	No PUR (N=166)	Adjusted OR*
Surgery Type, n (%)	MUS-O	17 (11)	140 (89)	5.4 (95%CI 2.4-11.9)
	MUS-R	18 (41)	26 (59)	

*Adjusted for BMI, age, and anesthetic type

Table 4. Validation of Meekins' algorithm against KHSC's PUR definition.

	%	(95% CI)
Sensitivity	96	(79 - 100)
Specificity	91	(85 - 95)
Positive Predictive Value	64	(46 - 79)
Negative Predictive Value	99	(96 - 100)

Conclusions

- Incidence of postoperative acute PUR after MUS in our centre is 17%, less than that reported by Meekins, which influences PPV
- Only identified risk factor for retention: retropubic MUS
- Meekins' proposed algorithm has robust NPV:
 - Reliable if patient is not in retention by their definition → only 1/130 women was incorrectly identified

Limitations & Future Directions

- Incomplete data for some patients
 - No gold standard for UR – different definitions
 - Different surgical populations (MUS vs. MUS + prolapse repair)
- Future directions include algorithm validation in other populations (POP, post-partum).

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