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INCIDENCE AND RISK FACTORS OF POSTOPERATIVE TRANSIENT UTERINARY RETENSION AFTER SINGLE INCISION VAGINAL MESH

Hypothesis / aims of study
The aim of this study was to find out the time to adequate voiding, incidence of and risk factors of transient urinary retention(TUR) after single incision transvaginal mesh(SIM) without concomittent mid-urethral sling.

Study design, materials and methods
With the increased life expectancy, women nowadays have a life time risk of 11% to receive at least one surgery for pelvic organ prolapse. One of the most common postoperative complication is transient urinary retension. We reviewed the medical records during Nov 2010 and Jan 2014, women who received single incision vaginal mesh(Elevate, American Medical Systems, Minnetonka, MN, USA) for symptomatic pelvic organ prolapse were included. Those with concomittent sling operation, preoperative Foley catheter indwelling, and intraoperative major complications including organ perforation were excluded. Transient urinary retention was defined as post-void volume>100ml in 2 consecutive measurement after Foley removal postoperatively.Age and other baseline characteristics, diabetes mellitus, prolapse stage, previous pelvic surgery, urodynamic parameters, preoperative pyuria, operation procedure, perioperative parameters and postoperative pain(visual analog scale) were assessed. Univariate and multivariate analysis with logistic regression test were conducted for risk factors identification.

Results
The incidence of TUR after SIM surgery was 31.4%, and the average time to adequate voiding was 2.42 ± 1.14 days. Eight patients (4.7%) had Foley reinserted for 2 days after several times of clean intermittent catheterization(CIC), and all had adequate voiding before discharge. Four patients (2.3%) discharge after teaching intermittent self-catheterization(ISC), and all patient has postvoid volume <100ml at the first postoperative follow up within one week after discharge. The success rate for the single incision mesh at an average of 2-year follow up was 97.1%(leading edge <0 in pelvic organ prolapse quantification system). Univariate analysis revealed age, VAS for pain before catheter removal was significantly difference between the groups with and without TUR, and the volume at first desire to void in urodynamic study preoperatively was borderline significant. However, multivariate variate analysis with logistic regression test showed age and VAS for pain before Foley removal be independent predictor of postoperative TUR.

Table 1. baseline character

	No TUR(n= 118)	TUR(n= 54)	*P* value
Age	65.0 ± 9.43	69.4 ± 8.26	0.004
VAS before foley removal	2.12 ± 1.07	2.84 ± 1.18	<0.001
First desire	160.8 ± 56.60	179.0 ± 66.47	0.08

Table 2 Multivariate analysis for risk factors

Variables	B	SE	*P* value	OR(95% CI)
Age	0.08	0.02	0.001	1.086(1.036-1.138)
VAS before Foley removal	0.7	0.204	0.001	2.015(1.350-3.005)
First desire to void	0.005	0.003	0.125	1.005(0.999-1.011)

Interpretation of results
There was no case of prolonged(> 6 weeks) urinary retension after SIM operation. The incidence of TUR in our study(31.4%) was in line with previous reports using strict definition for transient urinary retention. Interestingly, the four patient who were taught ISC and discharge did not have Foley reinserted during postoperative course; and those with Foley reinserted all had adequate void before discharge, indicated a transient and compensating course for bladder sensory repair. The result of our study support the previous study, hypothesizing that postoperative TUR may be partly related to nerve injury during paravesicle dissection. Secondly, the VAS for pain before Foley removal was significantly related to postoperative TUR(p = 0.01, Exp(B) = 2.01). Inadequate pain control while voiding might cause pelvic muscle unable to relax, causing pseudodyssynergia and results in high postvoid volume. Finally, age is one of the independent risk factors of postoperative TUR, which was also described in previous studies. Combined anterior and posterior compartment surgery, and spinal anesthesia were also suggested to be risk factors of postoperative TUR. However, due to the high prevalence of combined operation and general anesthesia in our hospital, our results were unable to demonstrate their relation with postoperative TUR.

Concluding message
In conclusion, we found that age and VAS for pain before Foley removal were independent risk factors for TUR after SIM. The result highlight the important of pain control after vaginal mesh operations, especially before Foley removal.

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