

Prevalence rates of evident, occult and no demonstrated urodynamic stress incontinence and their clinical and urodynamic findings in women with \geq stage II cystocele

Sheng-Mou Hsiao^{1,2,3}, Ting-Chen Chang³, Chi-Hau Chen³, Wen-Yih Wu¹, Ho-Hsiung Lin^{1,2#}

¹Department of Obstetrics & Gynecology, Far Eastern Memorial Hospital, Banqiao, New Taipei, Taiwan

²Graduate School of Biotechnology and Bioengineering, Yuan Ze University, Taoyuan, Taiwan

³Department of Obstetrics & Gynecology, National Taiwan University Hospital, Taipei, Taiwan

Hypothesis / aims of study

Prevalence rates of urodynamic urinary incontinence (USI) subtypes and their related clinical and urodynamic findings in women with \geq pelvic organ prolapse quantification stage II cystocele are important for clinical consultation, especially for occult USI. Misdiagnosis of occult USI before cystocele repair might lead to occurrence of de novo stress urinary incontinence after cystocele repair. Thus, the aim of this study was to elucidate the above findings and between-group associations.

Study design, materials and methods

Between November 2011 and January 2017, medical records of all women with \geq stage II cystocele who underwent urodynamic studies in a medical center were reviewed. ANOVA test and post-hoc testing with bonferroni's correction were used for statistical analysis. USI is noted during filling cystometry and is defined as the involuntary leakage of urine during increased abdominal pressure, in the absence of a detrusor contraction. The recruited patients with cystocele were classified into three groups (i.e., evident USI, occult USI and no demonstrated USI) according to pad weight results before and after prolapse reduction.

Results

A total of 480 women with \geq stage II cystocele were found to have evident USI (n=297, 61.8%), occult USI (n=76, 15.8%) and no demonstrated USI (n=107, 22.3%) (Table 1).

Stage of cystocele and uterine prolapse, pad weight results before and after prolapse reduction, the volume at strong desire to void, UDI-6, IIQ-7 and most domains of Kings' health questionnaires were significantly different between the occult and evident USI groups (Table 1 & 2).

Except pad weight results, and stage of coexistent uterine prolapse, there were no statistical differences in clinical and urodynamic parameters between the occult and no demonstrated USI groups (Table 1 & 2).

Stage of coexistent uterine prolapse = 3 was the most strongly predictive cutoff value for predicting occult USI with receiver operating characteristic curve area of 0.60 (95% CI = 0.52 to 0.68, sensitivity = 30.3%, specificity = 78.5%, Fig 1) in the subpopulation of \leq 1 g pad weight before reduction.

Interpretation of results

Women with cystocele in the occult USI group had higher stage of cystocele and coexistent uterine prolapse, larger bladder capacity and better health-related quality of life, compared with evident USI. Nonetheless, except the stage of coexistent uterine prolapse, there were no statistical differences in clinical and urodynamic parameters between the occult and no demonstrated USI groups.

Concluding message

The incidence of concomitant occult USI is not uncommon in women with \geq stage II cystocele. Except the stage of coexistent uterine prolapse, clinical and urodynamic findings are not different between the occult and no demonstrated USI groups in women with \geq stage II cystocele. Thus, for diagnosing occult USI, pad testing with prolapse reduction remains an important tool, especially for women with \geq coexistent stage III uterine prolapse.

Disclosures Statement: none

Table 1. Prevalence, clinical and urodynamic findings of USI subtypes among women with \geq stage II cystocele (n=480)

Variables	Evident USI (a, n=297, 61.8%)	Occult USI (b, n=76, 15.8%)	ND USI (c, n=107, 22.3%)	P†	Post hoc test‡
Age (years)	65.6 \pm 10.6	65.9 \pm 9.1	65.7 \pm 8.2	0.98	
Parity	3.2 \pm 1.2	3.1 \pm 1.5	3.3 \pm 1.3	0.75	
BMI (kg/m ²)	24.2 \pm 3.2	24.3 \pm 3.0	24.8 \pm 4.0	0.39	
Cystocele stage	2.4 \pm 0.6	2.6 \pm 0.7	2.5 \pm 0.6	0.02	a vs. b, p=0.03
Uterine prolapse stage	1.2 \pm 1.2	1.8 \pm 1.3	1.3 \pm 1.3	0.003	a vs. b, p=0.002 b vs. c, p=0.04
Rectocele stage	1.0 \pm 1.0	1.3 \pm 1.2	1.2 \pm 1.0	0.02	
\geq stage II uterine prolapse	120 (40)	47 (62)	48 (45)	0.004	a vs. b, p=0.001 b vs. c, p=0.02
Pad weight before reduction (g)	28.2 \pm 38.3	0.3 \pm 0.3	0.3 \pm 0.3	<0.001	a vs. b, p<0.001 a vs. c, p<0.001 b vs. c, p<0.001
Pad weight after reduction (g)	37.3 \pm 44.3	13.4 \pm 21.9	0.3 \pm 0.3	<0.001	
Qmax (mL/s)	19.8 \pm 10.3	19.9 \pm 10.6	19.0 \pm 10.1	0.77	
Voided volume (mL)	256 \pm 132	282 \pm 114	281 \pm 142	0.12	
Post-void residual (mL)	47 \pm 33	51 \pm 46	51 \pm 34	0.54	
Voiding time (s)	38.7 \pm 20.8	42.1 \pm 18.7	43.8 \pm 20.1	0.06	
Strong desire (mL)	243 \pm 54	273 \pm 48	259 \pm 56	<0.001	a vs. b, p<0.001 a vs. c, p=0.03
PdetQmax (cmH ₂ O)	22.1 \pm 16.9	23.5 \pm 17.9	24.0 \pm 15.3	0.54	
MUCP (cmH ₂ O)	60.4 \pm 35.1	65.2 \pm 41.4	71.1 \pm 39.8	0.04	a vs. c, p=0.03
FPL (cm)	2.5 \pm 0.7	2.6 \pm 0.7	2.5 \pm 0.7	0.52	
PTR at MUP (%)	113.8 \pm 49.8	124.0 \pm 58.0	117.3 \pm 45.3	0.29	
Daytime frequency (72 h)	26.2 \pm 9.1	26.1 \pm 10.3	25.2 \pm 8.1	0.64	
Nocturia (72 h)	4.3 \pm 3.5	4.4 \pm 3.4	4.0 \pm 2.9	0.65	
Urgency (72 h)	6.4 \pm 7.9	4.0 \pm 8.9	4.3 \pm 8.2	0.04	
Incontinence (72 h)	1.8 \pm 4.7	0.6 \pm 2.6	0.4 \pm 2.2	0.008	a vs. c, p=0.02
Voided volume (72h, mL)	5167 \pm 2332	5166 \pm 2146	5232 \pm 2200	0.97	
Fluid intake (72h, mL)	4842 \pm 2052	5053 \pm 1787	5009 \pm 1792	0.67	

Table 2. Scores of UDI-6, IIQ-7 and King's Health Questionnaires of USI subtypes among women with \geq stage II cystocele (n=480)

Variables	Evident USI (a, n=297)	Occult USI (b, n=76)	ND USI (c, n=107)	P†	Post hoc test‡
UDI-6	6.9 \pm 4.3	4.3 \pm 3.6	4.0 \pm 3.2	<0.001	a vs. b, p=0.001 a vs. c, p=0.001
IIQ-7	7.1 \pm 5.9	4.8 \pm 5.2	5.3 \pm 5.1	<0.001	a vs. b, p=0.005 a vs. c, p=0.01
GHP	49 \pm 20	48 \pm 18	46 \pm 20	0.47	
Incontinence impact	45 \pm 32	32 \pm 30	36 \pm 28	<0.001	a vs. b, p=0.004 a vs. c, p=0.01
Role limitations	40 \pm 32	30 \pm 29	27 \pm 29	<0.001	a vs. b, p=0.04 a vs. c, p=0.002
Physical limitations	44 \pm 33	31 \pm 31	32 \pm 28	<0.001	a vs. b, p=0.01 a vs. c, p=0.005
Social limitations	28 \pm 31	21 \pm 27	20 \pm 26	0.02	a vs. c, p=0.04
Personal relationships	22 \pm 29	22 \pm 27	16 \pm 27	0.45	
Emotions	37 \pm 30	25 \pm 26	27 \pm 26	0.001	a vs. b, p=0.008 a vs. c, p=0.01
Sleep / energy	38 \pm 28	27 \pm 26	24 \pm 22	<0.001	a vs. b, p=0.02 a vs. c, p=0.001
Severity measures	32 \pm 26	15 \pm 23	15 \pm 17	<0.001	a vs. b, p<0.001 a vs. c, p<0.001

Fig 1. The receiver operating characteristic curve of using stage of uterine prolapse to predict occult urodynamic stress incontinence

