Risk Factors of Female Urinary Incontinence and Overactive Bladder in Thai Postmenopausal Women

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Objectives: *To assess the risk factors of stress incontinence (SUI), Urge incontinence (UI), mixed type incontinence (MUI) and overactive bladder (OAB) in Thai postmenopausal women.*
Material and Method: *A total of 360 Thai post menopausal women (60 had SUI, 60 had UI, 60 had MUI, 60 had OAB, and 120 were controls). All women attended the gynecologic clinic at King Chulalongkorn Memorial Hospital during January-June 2004. All cases and controls were given questionaires on the risk factors of : age, body mass index (BMI), years since menopause, alcohol intake, routes and number of deliveries, history of chronic cough and constipation, and current hormonal therapy use. The multivariate logistic model was used to identified the independent risk factors and female urinary incontinence and OAB.*
Results: *In multivariate analysis, no factor was associated in UI or OAB group. In the SUI and MUI group, only the history of chronic cough [in SUI gr: OR 1.6 (1.1-2.3) in MUI gr: OR 3.5 (1.2-10.4)] and history of chronic functional constipation [in SUI group or 4.7 (1.5-14.7), in MUI or 3.0(1.1-7.9)].*
Conclusion: *Chronic cough and chronic functional constipation were the associated risk factors in stress and mixed type incontinence in Thai postmenopausal women.*

Keywords: *Risk factors , Urinary incontinence, Overactive bladder, Menopause*

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Urinary incontinence and symptoms of an overactive bladder (OAB) were common among adult women and older women. The reported prevalence for urinary incontinence was 14.0-71.5% and that for overactive bladder was reported to be 13-24% in women age 40-60 years[1-5]. The incontinence can cause substantial debility, social seclusion, psychologic stress, and economic burden[6,7]. There were reports of quality of life impacts from the different types of incontinence and OAB[8,9]. Up to now, there was no report of the prevalence and risk factors in Thai postmenopausal women which were the majority that had these problems. The aim of this study was to study the associated risk factors of Urinary incontinence and OAB in Thai postmenopausal women.

Material and Method

A total of 360 Thai post menopausal (60 had SUI, 60 had UI, 60 had MUI, 60 had OAB, and 120 were controls, case: control ration was 1:2). All women attended the gynecologic clinic at King Chulalongkorn Memorial Hospital from January to June 2004. Cases were interviewed using the questionnaire proposed by Wein and Rovner[10] to diagnose the SUI and MUI. Overactive bladder (OAB) was diagnosed by symptom status[11]. The women with OAB had to meet the case definition for OAB if they reported at least one of the following: frequency (exceeding eight micturitons in a 24-hour period or waking up at least twice each night to urinate); urgency (sudden feeling of a full bladder and the immediate need to urinate to avoid the accidental loss of urine). Urge incontinence defined as the loss of urine caused by an uncontrollable and sudden urge to urinate that occurred at least once per month and included more than just a “few drops of urine”. Controls were Thai women with cessation of menstruation more than one year. They had no symptom related to urinary incontinence of OAB and answered “No” to all the questions.

Urinary incontinence was defined by the

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International Continence Society (ICS) as the complaint of any involuntary leakage of urine[12]. This condition caused the considerable distress and led to impaired quality of life. Quality of life (QOL) was a multidimensional concept reflecting the individual's experience of physical, emotional and social well being, as well as perception of health status[13].

The incontinence may be classified as an overactive bladder (OAB,involuntary and unpredictable contractions of the detrusor muscle during the filling phase of the micturition cycle, causing an increased micturition frequency and a strong urge to void[12,14,15], stress urinary incontinence (SUI, involuntary leakage on effort or exertion, or on sneezing or coughing), or mixed type urinary incontinence (MUI, involuntary leakage associated with urgency and with exertion, effort, sneezing or coughing[12].

All cases and controls were interviewed by one well-trained nurses with a standard questionnaire. The factors included in the questionnaires were: age, body mass index (BMI), routes of delivery , history of operative obstetrics, years since menopause, current estrogen replacement use, history of chronic cough (defined as one lasting more than 3 weeks[16]), history of chronic functional constipation: using the diagnostic criteria of committee on functional Bowel Disorders and functional abdominal pain, multinational working teams to develop diagnostic criteria for functional gastrointestinal disorders(Rome II) as the following [17]: at least 12 weeks, which need not be consecutive, in the preceding 12 months of two or more of

1. Straining in > 1/4 defections;
2. Lumpy or hard stools in > 1/4 defecations;
3. Sensation of incomplete evacuation in 1/4 defecations;
4. Sensation of anorectal obstruction/blockade 1/4 defecations;
5. Manual maneuvers to facilitate > 1/4 defecations (e.g., digital evacuation, support of the pelvic floor); and/or
6. < 3 defecations;

Loose stools are not present, and there are insufficient criteria for irritable bowel syndrome, and alcohol intake > 250 cc/day

Statistical analysis

Linear regression models were used to assess the association between the variables and the outcome. Variables found to be significantly associated in the univariate analysis were entered into the model using a forward selection process using P less than 0.05 as the significance level to be entered and retained in the multivariate model. Statistical analysis was performed using SPSS version 10.0 .

Results

There was no statistical difference in patients' characteristisc (Table 1). After univaritate and mulitivariate analysis, only 2 variables (history of chronic cough and chronic functional constipation) were associated with SUI and MUI (Table 2, 3).

Discussion

As the prevalence of urinary incontinence

Table 1. Patients' characteristics (N=360)

	Controls (n = 120)	SUI (n = 60)	MUI (n=60)	OBA (n=60)	MUI (n-60)	Statistical difference
Age (yr)	52.0 ± 6.1	56.0 ± 4.1	50.5 ± 5.0	53.6 ± 5.8	53.0 ± 4.0	NS
Parity	2.4 ± 1.4	2.8 ± 1.3	2.6 ± 1.0	2.7 ± 4.0	2.5 ± 2.0	NS
Body weight (kg)	55.2 ± 3.0	55.1 ± 6.0	56.5 ± 4.4	55.1 ± 7.0	55.1 ± 6.3	NS
Height (cm)	150.0 ± 5.0	2.8 ± 1.3	2.6 ± 1.0	2.7 ± 4.0	2.5 ± 2.0	NS
Marital status						
∑Single	10 (8.3)	5 (8.3)	6 (10.0)	5 (8.3)	5 (8.3)	NS
∑Married	110 (83.4)	50 (83.4)	48 (80.0)	50 (88.3)	53 (88.3)	NS
∑Dirorce	10 (8.3)	5 (8.3)	6 (10.0)	5 (8.3)	2 (1.7)	NS
Education level						
∑Primary school	36 (30.0)	20 (33.3)	20 (33.3)	20 (33.3)	18 (30.0)	NS
∑Secondary school	36 (30.0)	15 (12.5)	10 (8.3)	15 (12.5)	18 (30.0)	NS
∑Vocational school	30 (25.0)	20 (33.3)	18 (15.0)	20 (33.3)	15 (25.0)	NS
∑Bachelor degree	10 (8.3)	4 (6.7)	10 (8.3)	3 (5.0)	5 (8.3)	NS
∑Master degree or higher	8 (6.7)	1 (1.7)	2 (1.7)	2 (1.7)	4 (6.7)	NS

NS = no statistical significance

Table 2. Factors associated with urinary incontinence and overactive bladder

	SUI		OAB		UI		MUI	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Age > 60 years	1.2	0.9, 1.4	1.2	0.6, 2.5	1.3	0.7, 2.2	1.1	0.8, 1.2
BMI > 30 kg/m^2	1.1	0.3, 4.1	0.8	0.2, 3.6	0.9	0.5, 2.3	0.6	0.1, 2.2
History vaginal delivery > 2	0.7	0.4, 1.2	0.9	0.5, 1.5	0.9	0.6, 1.6	0.7	0.4, 1.3
History of operative obstetrics > 1 (Forceps or Vacuum extraction)	0.9	0.3, 2.8	0.9	0.4, 3.5	0.8	0.3, 3.0	1.3	0.4, 4.3
History of cesarean section > 1	1.1	0.5, 2.7	1.4	0.6, 3.4	1.2	0.5, 2.2	1.8	0.6, 5.0
Years since menopause > 10 year	0.9	0.5, 1.7	1.4	0.7, 2.6	1.3	0.8, 2.7	1.2	0.6, 2.4
Current estrogen replacement use	1.0	0.5, 1.9	0.6	0.3, 1.2	0.7	0.2, 1.4	0.9	0.5, 1.8
History of chronic cough	1.6*	1.1, 2.3	2.4	0.6, 3.4	2.2	0.7, 4.0	3.5*	1.2, 10.4
History of functional constipation chronic	4.7*	1.5, 14.7	1.5	0.5, 4.4	1.3	0.4, 3.0	3.0*	1.1, 7.9
Alcohol intake > 250 cc/week	1.4	0.9, 1.9	1.6	0.6, 4.1	1.7	0.5, 1.2	2.0	0.9, 6.6

(*) Statistical difference at $p < 0.05$

Table 3. Multivariate analysis

	SUI		MUI	
	OR	95% CI	OR	95% CI
History of chronic cough	1.6	1.2, 3.0	3.2	0.6, 5.0
History of chronic functional constipation	4.5	1.8, 10.6	3.0	1.5, 7.8

and OAB were high in postmenopausal women[1-5], identification of the patients at risk may help in early treatment or prevention. From the present study, there was no associated risk factors with OAB and UI as previously reported[18,19]. Which in SUI and MUI, the history of chronic cough and chronic functional constipation were found to be the associated risk factors. The authors used the same diagnostic criteria as used in the internal medicine for the diagnosis of chronic cough and chronic constipation. The chronic cough and constipation increased the force to the pelvic support structures that increased the chance of having genital organ prolapses[20].

In contrast to some studies[19,21,22], the high BMI was not an associated risk factors as in Caucasian women. There might be genetically difference in anatomy or structural strength of the urethra and pelvic support structures that protect Thai postmenopausal women from high body weight while the chronic increase of abdominal pressure such as chronic cough seemed to have more effect. Anyhow, this study was the hospital based study. A population-based, case-control study is recommended. For modifiable or preventable risk factors, trials to determine if risk reduction lowers the incidence should be conducted in women with urinary incontinence.

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ปัจจัยเสี่ยงของโรคปัสสาวะเล็ดในสตรีและโรคกระเพาะปัสสาวะไวเกินในสตรีไทยวัยหมดระดู

สุวิทย์ บุณยะเวชชีวิน

วัตถุประสงค์: *เพื่อศึกษาปัจจัยเสี่ยงของโรคไอจามปัสสาวะเล็ด (SUI), ปัสสาวะเล็ดชนิดปวดรีบ(UI), และปัสสาวะเล็ดชนิดรวม (MUI) และโรคกระเพาะปัสสาวะไวเกิน(OAB) ในสตรีไทยวัยหมดระดู*

วัสดุและวิธีการ: *ทำการศึกษาสตรีไทยจำนวน 360 คน (60 เป็น SUI, 60 เป็น UI, 60 เป็น MUI, 60 เป็น OAB, และ 120 เป็นกลุ่มควบคุม) ทุกคนมารับการรักษาที่คลินิกนรีเวช โรงพยาบาลจุฬาลงกรณ์ ระหว่างเดือนมกราคม พ.ศ.2544 ถึง มิถุนายน พ.ศ. 2544 ทุกคนจะได้รับการตอบแบบสอบถามในปัจจัยเสี่ยงของ อายุ ดัชนีมวลกาย (BMI) ระยะเวลาหลังหมดประจำเดือน การดื่มสุรา วิธีการคลอด จำนวนการคลอด ประวัติการมีโรคไอเรื้อรัง อาการท้องผูกเรื้อรัง และการใช้ฮอร์โมนทดแทน วิเคราะห์ข้อมูลโดย multivariate logistic model*

ผลการศึกษา: *วิเคราะห์ข้อมูลโดย multivariate logistic model พบว่าไม่มีปัจจัยเสี่ยงที่สัมพันธ์กับ กลุ่ม UI หรือ OAB ในกลุ่ม SUI และ MUI, พบว่าประวัติการมีโรคไอเรื้อรัง [ในกลุ่ม SUI: OR 1.6 (1.1-2.3) ในกลุ่ม MUI: OR 3.5 (1.2-10.4)] และประวัติการมีอาการท้องผูกเรื้อรัง [ในกลุ่ม SUI OR: 4.7 (1.5-14.7), ในกลุ่ม MUI OR 3.0 (1.1-7.9)]*

สรุป: *พบว่าประวัติการมีโรคไอเรื้อรัง อาการท้องผูกเรื้อรัง เป็นปัจจัยเสี่ยงสำคัญในการเกิดโรคไอจามปัสสาวะเล็ด (SUI) และปัสสาวะเล็ดชนิดรวม (MUI) ในสตรีไทยวัยหมดระดู*