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Prevalence of Urinary Incontinence in Pregnant Women at Tertiary Care Hospitals in KhonKaen Province

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ABSTRACT

Objective: To determine prevalence of urinary incontinence during pregnancy.

Material and Method: A descriptive, cross sectional study was conducted. Total of 330 pregnant women, aged 15 to 43 years, attended antenatal care clinic at two tertiary care hospitals (Srinagarind and KhonKaen) in KhonKaen province between March and July 2013 were recruited. Self-administered questionnaires which was modified from International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF) were used to collect baseline data and urinary symptoms.

Results: There were 330 pregnant women participation in this study. The prevalence of urinary incontinence during pregnancy was 59 in 330 (17.9%, 95% CI = 13.9-22.4). Of this, forty (67.8%) pregnant women suffered from stress urinary incontinence, 27.1% from urge urinary incontinence. The risk factors for urinary incontinence on univariable analysis were multiparous (p = 0.004), age > 35 years (p = 0.035), caffeine intake (p = 0.001). But on multivariable analysis, the risk factors for urinary incontinence during pregnancy were multiparous (OR=2.3, 95%CI 1.3-4.1) and caffeine intake (OR 3.1, 95%CI 1.6-6.1)

Conclusions: The prevalence of urinary incontinence during pregnancy was high. Multiparity and caffeine intake contributed major risk factors.

Keywords: Urinary incontinence, Pregnancy

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Introduction

The definition of urinary incontinence, by International Continence Society 2002, was urine leaked out of the urethra with uncontrolled which caused health problems, personal hygiene and social problems. Several physiologic changes including enlargement of

uterus, engagement of fetus, and detrusor muscle instabilityresulting from changesin hormone levels have been acknowledged as factors associated with urinary incontinent (UI) during pregnancy[1-3].

The magnitude of this problem is usually underestimated owing to the fact that the majority of pregnant women with UI did not report to their providers[4]. In previous studies, some still were not clear about causes of urinary incontinence in pregnant women but some confirmed that the pregnancy has been associated with urinary incontinence[5-9]. The prevalence of UI during pregnancy in China, Turkey, Brazil, Denmark and Taiwan varied from 26.7 to 37.5%[5-9]. One study in Thai pregnant women, which data collected in only late third trimester, showed very high prevalence rate (53.8%)[10]. Stress urinary incontinence (SUI) was reported by most of pregnant women (13.7 – 60.5%)[4, 9-12].

Age, parity, history of urinary incontinence symptoms, constipation, history of urinary incontinence in the mother and sister, history of urinary incontinence during pregnancy and postpartum period, frequency of exercise, alcoholic intake, smoking, body mass index, waist circumference, the change of metabolic and hormonal system during pregnancy were reported as associated factors of UI by many studies[5,6,9,12].

This study aimed to determine the prevalence and risk factors of urinary incontinence in Thai pregnant women of various gestational ages.

Material and Method

This was a descriptive, cross-sectional study. Sample size was calculated based on prevalence UI in pregnancy was 30%. Thus, at least 323 participants were needed with a 5% estimated error and a confidence interval of 95%. In this study, we recruited 330 healthy pregnant women attending routine antenatal care clinic (ANC) at two tertiary care hospitals (Srinagarind 182 participants and Khon Kaen 148 participants) in Khon Kaen province between March to July 2013. All pregnant women signed informed consent before enrolled in the study. Self-administered questionnaire which was modified from International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF)[13,14] was used. The original questionnaire composed only 4 questions, which was claimed high level of validity, reliability and sensitivity[14]. This study used 33 Thai language questions to complete the questionnaire which divided into 5 parts including baseline data, obstetrics history, general health and daily life history, urinary symptoms during pregnancy and quality of life were used. UI is defined as involuntary loss of urine. The two most common UI reported in literature are stress urinary incontinence (SUI which means involuntary loss of urine on effort or physical exertion, or on sneezing or coughing) and urgency urinary incontinence (UUI-which means involuntary loss of urine associated with urgency)[15]. Our inclusion criteria were pregnant women of any gestational age. The exclusion criteria were, had urinary incontinence before pregnancy, symptom of acute lower urinary tract infection, history of urological surgery, gynecological surgery such as myomectomy vaginal repair, current using of parasympathomimetic or sympatholytic drugs. This study was approved by the Ethics Committee of KhonKaen University.

Descriptive data were expressed in mean, range and percentage. The variables that correlated in the univariable analysis ($p < 0.20$) were included in multiple logistic regression analysis to determine the correlated factors of urinary incontinence. All data were analyzed by SPSS (IBM, Armonk, NY, USA), and $p < 0.05$ was considered statistically significant.

Results

The total of 330 pregnant women from two tertiary care hospitals were enrolled. Baseline characteristics of participants were shown in Table 1. Mean age of participants was 26.6 years (15-43 years), the majority women were younger than 35 years (89.1%). One hundred and thirty women in 330 participants (40%) were multiparous and the majority of them delivered vaginally (76.9%). Caffeine intake during pregnancy was found in 49 (14.8%) of these women. The prevalence of UI during pregnancy was 59 in 330 (17.9%, 95% CI = 13.9-22.4). Of this, forty (67.8%) pregnant women suffered from SUI, 27.1% from urge urinary incontinence (UUI) (Table 2). The significant

factors potential predicts UI evaluated by univariate analyses included age (p=0.035), parity status (p=0.004), BMI (p=0.003) and history of caffeine intake (p=0.001). But previous delivery route (p=0.015) and gestational age (p=0.333) however there were not have statistical significance (Table 3).

Table 1. Characteristics of the study population (N=330)

Variable	Frequency (%)
Age (yr) mean	26.6 (15-43)
<35 (%)	294 (89.1)
>35 (%)	36 (10.9)
Education	
<High school (%)	126 (38.2)
>High school (%)	204 (61.8)
Parity	
Primigravidas (%)	200 (60.6)
Multiparas (%)	130 (39.4)
Previous delivery route	
Vaginal route (%)	100 (76.9)
Cesarean section (%)	30 (23.1)
Gestational age	
First trimester (%)	110 (33.3)
Second trimester (%)	119 (36.1)
Third trimester (%)	101 (30.6)
Body mass index (kg/m^2) (%)	
<19.8	141 (42.7)
>19.8-26	149 (45.2)
>26-29	26 (7.9)
>29	14 (4.2)
Caffeine intake (%)	
Yes	49 (14.8)
No	281 (85.2)
Alcohol drinking (%)	
Yes	24 (7.3)
No	306 (92.7)
Smoked (%)	
Yes	2 (0.6)
No	328 (99.4)
Constipation (%)	
Yes	99(30.0)
No	231(70.0)
Chronic cough (%)	
Yes	16(4.8)
No	314(95.2)

Table 2. Types of urinary incontinence

Type of urinary incontinence	Frequency (%)
Stress incontinence	40 (67.8)
Urge incontinence	16 (27.1)
Other	3 (5.1)

Table 3. Factors potentially predicting UI, by univariate analyses

Variable	No. UI	UI	p
Age (yr)			0.035
< 35	246	48	
> 35	25	11	
Parity			0.004*
Primigravidas	174	26	
Multiparas	97	33	
Body mass index (kg/m^2)			0.003
< 19.8	127	14	
> 19.8-26	115	34	
> 26-29	17	9	
> 29	12	2	
Caffeine intake			0.001
Yes	239	42	
No	32	17	
Previous delivery route			0.015
None	174	26	
Vaginal route	74	26	
Cesarean section	23	7	
Gestational age			0.333
First trimester	95	15	
Second trimester	94	25	
Third trimester	82	19	

* $p < 0.05$ = statistical significance

Age, parity status, BMI, and caffeine intake were included for logistic regression. However, only two factors including; parity status and caffeine intake were found to have an independent effect. Multiparity and caffeine intake increased risk of UI with an adjusted OR of 2.3 (95% CI, 1.3%-4.1%) and 3.1 (95% CI, 1.6%-6.1%) respectively (Table 4). The quality of life of 59 pregnant women was found to be either unaffected or affected very little by urinary incontinence (Table 5).

Table 4. Factors potentially predicting UI, multivariate analyses

Variable	Adjusted OR	95% CI	p
Parity	2.3	1.3-4.1	0.005*
Caffeine intake	3.1	1.6-6.1	0.001*

* $p < 0.05$ = statistical significance

Table 5. Effected activities from urinary incontinence and frequency of occurrence (n=59)

Activity	None n (%)	Occasionally n (%)	Sometime n (%)	Most of the time n (%)
Household chores	42 (71.2)	11 (18.6)	5 (8.5)	1(1.7)
Leisure activity	33 (55.9)	19 (32.2)	6 (10.2)	1(1.7)
Car travel > 30 mins	30 (50.8)	13 (22.0)	14 (23.7)	2(3.4)
Emotional effect	30 (50.8)	21 (35.6)	7 (11.9)	1(1.7)
Sense of shame	38 (64.4)	15 (25.4)	4 (6.8)	2 (3.4)

Discussion

The prevalence of UI during pregnancy in our study was rather high. The most common type of UI was stress incontinence. Independent factors predicting UI were multiparity and caffeine intake.

The prevalence of UI during pregnancy varied among population. A study conducted in Chinese pregnant women, was 26.7% (95% CI, 25.8%-27.6%)[5], in Taiwan, was 37.5% (95% CI, 35.1%-40.7%)[9], in Turkey, was 27.0% (95% CI, 22.6%-31.6%)[6], in Denmark, was 32.1% (95% CI, 29.1%-35.1%)[8]. The difference of the reported may be due to different baseline characteristics of the participants such as inclusion criteria and different ethnics, genetics, and environment. However, our study showed that stress incontinence was major cause of UI during pregnancy consistent with other studies[5,6,8-9]. In addition, this study found multiparous pregnant women were 2.3 times more likely to have UI compared to women in primiparous group, this finding confirmed the results of previous study in Brazil which noted that the prevalence of UI directly associated with number of previous pregnancy[7]. Caffeine intake played a role in UI during pregnancy as well. The diuretic effect of caffeine might be a cause of stimulating UI. However, the underlying mechanism remained unknown. About quality of life (QoL) of pregnant women with UI in other studies found that UI had a very severe impact on QoL such as working routines, free time activities, and even sexual intercourse, whereas in this study UI had unaffected or affected very little on QoL, it might be due to different awareness and concern of these bothersome experiences. Some might though that it was a nature of pregnancy[4].

The strengths of this study, we found a rather high rate of UI during pregnancy which confirmed the assumption that this problem is usually underestimated and in addition, we were able to highlight the independent predictors for UI which were very helpful for designing an intensive program directed towards the prevention and assessment of UI in our population. The limitations of this study was the sample size calculation was based on the primary objective which was aimed to the determine the prevalence of UI during pregnancy, this could be a factor precluding prognostic significance of BMI and patients' age after mutivariate analysis. So to determine major association factors of UI in pregnant women, the larger sample size should be considered for future research.

This study demonstrated that the majority of pregnant women who had UI were multipara and caffeine intake. Then, all pregnant women should be informed risk for urinary incontinence and cessation of caffeine can alleviate the symptoms.

Conclusion

The prevalence of urinary incontinence during pregnancy was high especially stress urinary incontinence. Multiparity and caffeine intake contributed major risk factors. The quality of life of pregnant women with urinary incontinence was found to be either unaffected or affected very little by urinary incontinence.

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ความชุกของภาวะกลั้นปัสสาวะไม่อยู่ในสตรีตั้งครรภ์ในโรงพยาบาลระดับตติยภูมิ ในจังหวัดขอนแก่น

วาณี ติ่งทอง, ประนอม บุพศิริ, โฉมพิลาศ จงสมชัย, ธีระยุทธ เต็มธนะกิจไพศาล, อุษณีย์ สังคมกำแหง

วัตถุประสงค์ *: เพื่อศึกษาความชุกของภาวะกลั้นปัสสาวะไม่อยู่ในสตรีตั้งครรภ์ในโรงพยาบาลระดับตติยภูมิ ในจังหวัดขอนแก่น*

วัสดุและวิธีการ *: เป็นการศึกษาเชิงพรรณนาชนิดตัดขวางในสตรีตั้งครรภ์จำนวน 330 คน อายุระหว่าง 15 ถึง 43 ปี ที่มาฝากครรภ์ที่โรงพยาบาลระดับตติยภูมิสองแห่งในจังหวัดขอนแก่น (โรงพยาบาลศรีนครินทร์และโรงพยาบาลขอนแก่น) ระหว่างเดือนมีนาคม ถึงกรกฎาคม 2556 โดยใช้แบบสอบถามแบบตอบเองซึ่งเป็นแบบสอบถามเกี่ยวกับข้อมูลส่วนตัวและประวัติความผิดปกติในการปัสสาวะระหว่างตั้งครรภ์ที่ดัดแปลงมาจาก International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF)*

ผลการศึกษา *: สตรีตั้งครรภ์เข้าร่วมการศึกษาทั้งหมด 330 คน ความชุกของภาวะกลั้นปัสสาวะไม่อยู่ในสตรีตั้งครรภ์เท่ากับร้อยละ 17.9 (95% CI 13.9-22.4) ในจำนวนคนที่มีปัญหากลั้นปัสสาวะไม่ได้ 59 คน จากทั้งหมด 330 คน พบความชุกของไอจามปัสสาวะเล็ดร้อยละ 67.8 กลั้นปัสสาวะไม่ค่อยได้ร้อยละ 27.1 จากการวิเคราะห์แบบ univariate พบว่าปัจจัยที่มีผลเกี่ยวของกับภาวะกลั้นปัสสาวะไม่อยู่ในสตรีตั้งครรภ์ ได้แก่การตั้งครรภ์หลัง (p = 0.004), อายุมากกว่าหรือเท่ากับ 35 ปี (p = 0.035), การดื่มคาเฟอีน (p = 0.001) แต่จากการวิเคราะห์แบบ multivariate พบปัจจัยเกี่ยวข้องเพียงสองปัจจัย คือ การตั้งครรภ์หลัง (OR=2.3, 95%CI 1.3-4.1) และการดื่มคาเฟอีน (OR 3.1, 95%CI 1.6-6.1)*

สรุป *: ความชุกของภาวะกลั้นปัสสาวะไม่อยู่ในสตรีตั้งครรภ์อยู่ในระดับสูง ปัจจัยที่สัมพันธ์กับภาวะกลั้นปัสสาวะไม่อยู่ในสตรีตั้งครรภ์ คือการตั้งครรภ์หลังและการดื่มคาเฟอีน*