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CHANGE IN VOIDING FUNCTION DURING PREGNANCY

Hypothesis / aims of study

Many epidemiological studies have shown that lower urinary tract symptoms (LUTS) are common during the first pregnancy. Both prevalence and severity of LUTS seem to increase through out pregnancy. It also compromised on daily life of pregnant women. Both anatomical change and hormonal change during pregnancy can disrupt the normal urinary tract function. The aim of this study is to identify the effect of pregnancy in different gestational age on voiding function by using free uroflowmetry.

Study design, materials and methods

A prospective study of 100 Thai nulliparous 8-12 week-pregnant women who attended the antenatal clinic in the tertiary care hospital was performed. After signing an inform consent, all women were interviewed about their voiding symptoms such as frequency, nocturia, stress incontinence and urge incontinence. The severity of each symptom was clarified as none, mild, moderate and severe. They were asked to void in a special-setting toilet in the clinic. Maximum flow rate (Qmax), average flow rate (Qavg), voided volume (VV) and residual urine volume were measured. During 24-28 weeks and 34-38 weeks gestation, they were interviewed about their LUTS and underwent free uroflowmetry for second and third visit. SPSS 15.0 for windows (SPSS Inc, Chicago, Illinois) was used for statistical analysis. P value < 0.05 was considered significant.

Results

Mean age was 26.6 ± 5.4 years and the mean body weight and height were 52.4±9.4 kilograms and 157.8± 5.5 centimetres. The average gestational age was 8.6±1.9 weeks at first visit, 26.1 ± 1.3 weeks at second visit and 34.1 ± 1.6 weeks at last visit. The mean ranks of different LUTS were shown in table 1.

Table 1: The mean rank of each LUTS in different visits.

Lower urinary tract symptoms	Gestational age			P Value
(moderate to severe)	8-12 wks.	24-28 wks.	34-38 wks.	
Frequency (mean rank)	1.81	2.02	2.16	0.001
Nocturia (mean rank)	1.74	2.1	2.16	0.001
Stress incontinence (mean rank)	1.82	2.02	2.16	0.001
Urge incontinence (mean rank)	1.97	2.03	2	0.135

Friedman Two-way ANOVA, P<0.05

The mean gestational age of these women on the second visit was 26.1±1.3 weeks and on the third visit was 34.1±1.6 weeks. Table 2 shows the comparison of free uroflowmetric parameters between three different visits. All women had residual urine during first, second and third visit less than 50 ml.

Table 2: The comparison of free uroflowmetric parameters between three different visits

Free Uroflowmetry	Gestational age			P-value	
	8-12 wks.	24-28 wks.	34-38 wks.	A*	B**
Qmax (mean±SD.,ml/sec)	24.0±9.6	24.9±10.7	26.0±9.1	0.56	0.14
Qavg (mean±SD.,ml/sec)	14.8±6.0	15.3±5.9	15.6±5.2	0.53	0.3
Voided volume (mean+SD.,ml)	201.2±116.8	177.4±117.6	176.1±104.6	0.17	0.11

* A = Paired T-test between first and second visit
** B = Paired T-test between first and third visit
P<0.05

Interpretation of results

The symptom of urinary frequency and nocturia increased throughout pregnancy. Only two women at 24-28 weeks and one woman at 34-38 weeks reported moderate to severe stress incontinence. No women had moderate to severe urge

incontinence. Maximum and average flow rates slightly increased toward the end of pregnancy. But voided volume was slightly decreased in the second and third visits. Residual urine of less than 50 ml was found in all women and all periods.

Concluding message

Urinary frequency and nocturia were common in Thai nulliparous pregnancy. Most of them did not complaint of stress nor urge incontinence. As the literature, maximum and average flow rate seems to increase consistently while gestational age increase and average voided volume were reduced in late pregnancy [1]. Residual urine was unchanged during pregnancy and no women had voiding dysfunction.

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