

URODYNAMIC CHANGES OF THE LOWER URINARY TRACTS IN LATE PREGNANCY

Hypothesis / aims of study

The function of the lower urinary tract is changed significantly by pregnancy, to the extent that frequency and incontinence have been regarded as cardinal symptoms of pregnancy. During pregnancy, especially in the late pregnancy, the physiological and anatomical changes inherent in normal pregnancy and the changing hormonal environment are generally assumed to play a role in the pathogenesis of urinary tract symptomatology. Although many studies have reported urinary symptoms in relation to pregnancy, there are few studies assessing the effect of pregnancy on urodynamic variables. The aim of this study was to evaluate bladder and the urinary tract function of the healthy women during the late pregnancy by urodynamic investigation, in order to find out the characteristics of urinary continence of the lower urinary tract of these women.

Study design, materials and methods

Seventy four women attending the antenatal clinics were invited to participate in this study. Forty-seventy women (range 22–42 years, mean age 29±4 years, duration of pregnancy from 32 to 42 weeks, mean 34.1±0.4 weeks) of them without urinary leakage in late pregnancy were selected as the study group (SG), and exclusion criteria included pre-existing diabetes, a history of spinal surgery. Twenty-seventy women (age from 20 to 35 years, mean 29±6 years) with upper urinary tract diseases but having normal lower urinary tract function were included in control group (CG), and these women were married but not bore. All women are voluntary to perform urodynamic testing. The methods and definitions conform to the standards proposed by the International Continence Society.

Results

The concrete urodynamic parameters were shown in Table 1. Compared to CG, the SG showed a significant decrease in Maximal flow rates, Voiding volume and Normal desire, and an increase in maximal urethral pressure, maximal urethral closure pressure and functional urethral length ($p < 0.05$), where the difference in Maximum detrusor pressure, Bladder compliance and Maximum voiding detrusor pressure were not significant ($p > 0.05$). In the SG, Post-void residual was detected in seven patients in late pregnancy but all less than 10ml.

Table 1 The urodynamic parameters compared between the two groups

Group	Qmax (ml/s)	VV (ml)	Pdet.max (cmH ₂ O)	BC (cmH ₂ O/ml)	ND (ml)	Pdet.void.m ax (cmH ₂ O)	MUP (cmH ₂ O)	MUCP (cmH ₂ O)	SFL (cm)
SG(n=47)	20±13	163±13	60±32	47±29	226±85	43±20	146±36	116±34	31±7
CG(n=27)	32±7	436±19	52±4	57±17	338±56	41±9	87±7	78±8	26±2
t	4.50	4.93	1.57	1.24	4.58	0.48	9.91	6.43	3.40
p	0.00	0.00	0.13	0.22	0.00	0.63	0.00	0.00	0.00

Interpretation of results

The results of the investigation revealed that the physiologic changes which took place within the urethra during pregnancy were to advantage from standpoint of maintaining continence. Our urodynamic finding presents some important parameters of maintaining continence in late pregnancy differ from those in Non-pregnancy and the lower urinary tract function much differ from each other

Concluding message

The sufficient increase of the static urethral pressure profile in later pregnancy could compensate for the progressive increase in bladder pressure during pregnancy, which is beneficial to maintain the urinary continence mechanisms in pregnancy.

Disclosures

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