479

Svabik K[1], Masata J[1], Martan A[1], Drahoradova P[1]
1. Ob/Gyn Dept 1st Faculty of Medicine Charles University Prague

INFLUENCE OF BMI ON THE FUNNELLING AND MOBILITY OF THE URETHRA

Hypothesis / aims of study

The aim of the study was to confirm our hypothesis that Body Mass Index (BMI) influences the supporting structures of the urethra.

Study design, materials and methods

In our prospective observational study we include two groups of continent women who differed in BMI, and two groups of incontinent women who also differed in BMI. We observed 108 continent women, 68 with BMI < 25 (mean 21,409) and 40 with BMI > 25 (mean 28,047). There was no statistical difference in age and parity. Additionally, we observed 211 women with urodynamically proven stress incontinence, 64 with BMI < 25 (mean 22,954) and 146 with BMI > 25 (mean 29,883). There was no statistical difference in age and parity between these two groups

Two parameters of the urethra were observed – the dimensions of the inner orifice and the mobility of the entire urethra. The width and depth of the inner orifice of the urethra were measured by transvaginal ultrasound, using high magnification. The measurements for mobility of the urethra were taken transperinealy in the supine position at rest and during maximal Valsalva at 4 defined points: at the urethrovesical junction, and at the upper, middle, and lower third of the urethra. The mobility was expressed as vector length and direction of the movement from rest to the maximal Valsalva manoeuvre. .

Results:

	N	N	mean	mean	anova p-value	K p-value
FwR	68	40	4,450	5,227	**0,004**	**0,007**
FdR	68	40	3,390	4,151	**0,001**	**0,002**
FwV	68	40	3,543	3,329	0,777	0,723
FwV	68	40	2,499	2,209	0,501	0,410

F- funneling; w – width (mm); d – depth (mm); R – rest; V – Valsalva manoeuvre

In the higher BMI group there was a statistical difference it the width and depth of funneling at rest, but no difference during the Valsalva. We found no statistical difference in mobility of the urethra at all points when we compare the group of continent women with high BMI to the group of continent women with lower BMI: vector UVJ - anova p-value 0,192 K p-value 0,250; vector upper third - anova p-value 0,409 K p-value 0,441; vector middle anova p-value 0,332 K p-value 0,470; vector lower third 0,429 K p-value 0,597.

In the group of incontinent women with lower BMI we found statistically significant increased mobility of the urethra at all points when compared to the higher BMI group. There was a statistical difference in width of the funneling at rest only.

	N	N	mean	mean	anova p-value	K p-value
vUVJ	65	146	21,471	19,884	**0,029**	**0,046**
vU	65	146	20,235	18,255	**0,005**	**0,010**
vM	65	146	17,348	15,257	**0,002**	**0,009**
vL	65	146	16,331	14,629	**0,009**	**0,017**

v – vector (mm) ; UVJ – urethrovesical junction; U – upper third; M – middle; L - lower third

N	N	N	mean	mean	anova p-value	K p-value
FwR	65	146	4,555	5,262	**0,025**	**0,043**
FdR	65	146	3,892	4,374	0,228	0,117
FwV	65	146	7,732	7,853	0,216	0,286
FwV	65	146	9,160	10,129	0,259	0,206

Interpretation of results

The width of the funneling of the inner orifice of the urethra was significantly greater in both continent and incontinent women with higher BMI. The mobility of the urethra did not differ in continent women, despite different BMI. However, the mobility of the urethra was higher in the group of incontinent women with lower BMI.

Concluding message

The group of incontinent women with lower BMI had less funneling and increased mobility of the urethra, when compared to the higher BMI group.

Higher BMI itself did not increase the mobility of the urethra, but has negative influence on the size of the funneling of the urethra in continent and incontinent women. These results indicate that increased BMI may have a direct effect on the urethra, instead of an effect on the supporting structures.

The work is supported by IGA of the Ministry of Health of the Czech Rep. NH 7378-3

FUNDING: IGA of the Ministry of Health of the Czech Rep. NH 7378-3