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Cheung W[1], Borawski D[1]
1. *SUNY Downstate Medical School*

LOWER TRACT URINARY SYMPTOMS IN PATIENTS WITH UTERINE MYOMAS

Hypothesis / aims of study

To study the prevalence and risk factors of the overactive bladder, urinary incontinence and other lower tract urinary symptoms in patients with uterine myomas.

Study design, materials and methods

Female patients with established diagnosis of the uterine myomas presenting to gynecology clinic were invited to answer a self-administered questionnaire. It included validated questionnaire on evidence of lower urinary tract symptoms (modified Overactive Bladder-Validated 8-question Screener [OAB-V8])**.** Demographic data, relevant medical and surgical history, and pelvic ultrasound findings were reviewed from the patients charts. Statistical significance of relationship between overactive bladder (OAB), stress incontinence and urge incontinence in relation to body mass index (BMI), uterine volume and size of dominant myoma were analyzed using 2-taild exact Fisher test and Wilcoxon test. (Table 1)

Results

98 patients completed the questionnaire over the period of 3 months. Table 2 presents the characteristics of the participants. Patients ranged from 28 to 81yeras, and the majority were premenopausal (87 out of 98;87.7%). 74.4% patients had 3 and more detected myomas on the ultrasound, with the size of the dominant uterine myoma more than 6cm in 41 out of 98 (41%) cases. (Table 3)

OAB was present in 47 out of (98) 47.95 % women. No significant statistical relation between size and volume of the uterus and overactive bladder, urge incontinence, stress incontinence and mixed incontinence was noted (Table 4). Observation of OAB subtypes with urge and stress incontinence in premenopausal patients with uterine myomas was statistically significant in comparison with premenopausal women studied in family clinic, (15.3% vs 60% and 6.8% vs 63%) ($p<0.001$). Overall prevalence of OAB was similar in both groups 53.2% vs 52.8% which have the very similar demographic characteristics.

Concluding message

Our study showed the higher prevalence of overactive bladder than in general population, however the overall OAB prevalence related to fibroids did not show statistical significance. OAB-stress incontinence and OAB-urge incontinence subtypes were associated with uterine myomas. Interestingly the premenopausal women with uterine myomas tend to have more OAB with urge and stress incontinence.

Interpretation of results

Table 1. Criteria for LUTS and OAB subtypes

	Identification criteria
LUTS	
Urgency	Answer ≥1 to any one of the three OAB-V8 questions on urge to urinate
Frequency	Answer ≥1 to any one of the two OAB-V8 questions on frequent urination
Nocturia	Answer ≥1 to the OAB-V8 question on nocturia
Urge urinary incontinence (UUI)	Answer ≥1 to one of the two OAB-V8 questions on urine leakage associated with urge
Stress urinary incontinence (SUI)	Answer ≥1 to one of the two questions on urine leakage associated with physical activities, sneezing, coughing, or laughing
Mixed urinary incontinence (MUI)	Meet the criteria for both UUI and SUI described above
Incomplete emptying	Answer ≥1 to the question on incomplete emptying
OAB subtypes (based on presence of above symptoms)	
OAB with frequency alone (OAB-F)	OAB-V8 score ≥8 with symptoms of frequency and/or nocturia only
OAB with urgency without incontinence (OAB-U)	OAB-V8 score ≥8 with symptoms of urgency without incontinence
OAB with urge urinary incontinence (OAB-UUI)	OAB-V8 score ≥8 with symptoms of UUI and no SUI
OAB with stress urinary incontinence (OAB-SUI)	OAB-V8 score ≥8 with symptoms of SUI and no UUI
OAB with mixed urinary incontinence (OAB-MUI)	OAB-V8 score ≥8 with symptoms of MUI

LUTS = Lower urinary tract symptoms

Table 3. Prevalence of LUTS and OAB subtypes in all patients with uterine myomas.

LUTS , N(%)	N=98
Urgency	66 (67.3)
Frequency	65(66.3)
Nocturia	74(75.5)
UUI	34(34.7)
SUI	50(51.0)
Incomplete emptying	35(35.7)
MUI	22(22.4)
OAB positive N (%)	47(47.9)
OAB-F	9(19.1)
OAB-U	0
OAB -UUI	28(59.5)
OAB-SUI	29(63.0)
OAB-MUI	18(38.3)
OAB negative N (%)	N=51(52.0)
Urgency	14(27.4)
Frequency	20(39.2)
Nocturia	29(56.8)
UUI	6(11.7)
SUI	21(21.4
MUI	4(07.8)
Incomplete emptying	13(13.2)

UUI=urge urinary incontinence, SUI=stress urinary incontinence, MUI=mixed urinary incontinence

OAB-F = OAB with frequency alone, OAB-U = OAB with urgency without incontinence, OAB-UUI = OAB with urge urinary incontinence, OAB-SUI = OAB with stress urinary incontinence, OAB-MUI = OAB with mixed urinary incontinence

Table 2. Patients characteristics.

Characteristic, *n* (%)	Premenopausal (n=87)		Postmenopausal (n=11)		Total (n=98)	
Age, years						
25-34	10	(11.4)	-		10(10.2)	
35-44	32	(36.7)	-		32(32.6)	
45-54	45	(51.7)	3	(27.2)	48(48.9)	
55-64	-		6	(54.5)	6(6.1)	
65-74	-		1	(9.0)	1(1.0)	
≥75	-		1	(9.0)	1(1.0)	
Race						
Black	84	(96.5)	11	(100)	95(97.9)	
Hispanic	1	(1.0)	-		1(1.0)	
White	-		-		-	
Other / Not stated	2	(2.2)	-		2(2.0)	
Body mass index (BMI), kg/m^2						
<24.9	21	(24.1)	0		21(21.4)	
25.0-29.9	26	(29.8)	6(54.5)		32(32.6)	
30-34.9	20	(22.9)	3(27.2)		23(23.4)	
35-39.9	7	(8.0)	0		7(7.1)	
>40	13	(14.9)	2(18.1)		15(15.3)	
History of smoking*						
Yes	3	(3.0)			3(3.0)	
No	95	(96.9)	0		95(96.9)	
Parity						
<2	44(50.5)		1(9.0)		45(45.9)	
2-4	38(43.6)		7(63.6)		45(45.9)	
>5	5(5.7)		3(27.2)		8(8.1)	
Previous surgical history						
Bladder surgery	0	--	0		--	--
Urinary leakage surgery	0	--	0		--	--
C-section	14	(14.2)	0		14	(14.2)
Myomectomy	7	(7.1)	0		7	(7.1)
Size of the uterus wks						
8-11	19(21.8)		3(27.2)		22	(22.4)
12-14	23(26.4)		3(27.2)		26	(26.5)
15-19	28(32.1)		4(36.3)		32	(32.6)
>20	17(19.5)		1(9.0)		18	(18.3)
Size of dominant uterine fibroids						
<3cm	23	(26.4)	3	(27.2)	26(26.5)	
4-5cm	29	(33.3)	3	(27.2)	31(31.6)	
>6 cm	37	(42.5)	3	(27.2)	41(41.8)	
OAB status						
Normal	41	(47.1)	10	(90.9)	51	(52.0)
OAB	46	(52.8)	1	(10.)	47	(47.9)
OAB with UI	38	(43.6)	0		38	(38.7)

Table 4a.

	OAB	SUI	UUI	MUI
BMI	p=0.321	p=0.120	p=0.124	p=0.153
Max fibroid size	p=0.101	p=0.516	p=0.941	p=0.727
Volume of the uterus	p=0.580	p=0.310	p=0.275	p=0.175

Table 4b. Prevalence of the OAB subtypes in premenopausal patients in family medicine clinic and in patients with leiomyoma.

n (%)	Premenopause (*n*=111)	Premenopause with Uterine myomas (n=87)	*p* value
OAB positive	59 (53.2)	46 (52.8)	1.0
OAB subtypes			
OAB-F	2(03.4)	9 (19.5)	.011
OAB-U	6(10.2)	0	.035
OAB-UUI	9(15.3)	28(60.8)	<.001
OAB-SUI	4(06.8)	29(63.0)	<.001
OAB-MUI	38(64.4)	18 (39.1)	.887
OAB with incontinence	51(86.4)	38 (82.6)	.597

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Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**SUNY Downstate Medical School institutional IRB**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**