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Futyma K[1], Nowakowski L[1], Bogusiewicz M[1], Zietek A[1], Wieczorek P[2], Rechberger T[1]
1. *2nd Department of Gynecology, Medical University of Lublin, Poland,* ***2.*** *Department of Pediatric Radiology, Medical University of Lublin, Lublin, Poland*

ARE UROFLOWMETRY PARAMETERS USEFUL IN THE OVERACTIVE BLADDER DIAGNOSIS?

Hypothesis / aims of study

Overactive bladder syndrome (OAB, Urgency) is defined by *ICS-IUGA Joint Terminology Standardisation Report* as urinary urgency, usually accompanied by frequency and nocturia, with or without urgency urinary incontinence, in the absence of urinary tract infection (UTI) or other obvious pathology [1]. Since OAB symptoms are not required to be confirmed by urodynamics, mostly by detrusor instability observed during cystometry there are no clear, objective rules to prove the symptoms, which may be important issues for national health services worldwide and medication refunds for the patients. On the other hand, Digesu and colleagues found that more than 70% of women with urodynamic diagnosis of detrusor overactivity in fact did not report OAB symptoms. They conclude that those women probably would not have received the appropriate anticholinergic treatment if urodynamic studies had not been performed. Furthermore, 45% of women with OAB symptoms do not present unstable detrusor or bladder contractions in urodynamics. Positive predictive value of this assessment tool was only 0.54 but negative predictive value was as high as 0.68 [2]. In the literature uroflowmetry was used to evaluate bladder obstruction, abnormally slow or incomplete micturition rather than OAB, detrusor overactivity or irritable bladder [3]. This noninvasive and relatively inexpensive examination gives objective and quantitative information, which helps to understand both storage and voiding symptoms, it also complements the data provided by the bladder diary or the patient. Nevertheless, as mentioned above simple and noninvasive tool is wanted for diagnosing and maybe even more important, in monitoring the OAB treatment effect.

Study design, materials and methods

This is retrospective study of urodynamic examinations performed in our tertiary referral urogynecology clinic from 2007 to December 2013. All patients signed informed consent and local Ethical Committee approved the study concept. Women with lower urinary tract symptoms (LUTS) were studied. Demographic and urodynamic parameters are given in Table 1. All women were fully evaluated, with history, bladder diary, vaginal examination, and finally urodynamics. Women with neurological disorders were excluded. Urinary symptoms and urodynamics results were than correlated. All terms and definitions are in accordance with the ICS-IUGA Joint Terminology. All patients were asked to perform free micturition without any abdominal straining. Because the strong dependency of urine flow rates on voided volume has been determined and validated, they are best tool for finding bladder outlet obstruction. Though, we excluded all patients with results under the 10th centile of the Liverpool nomogram. Statistical analysis was performed using Statistica 10PL package.
We used simple flow index (FI) calculated as maximal urethral flow divided by average urethral flow (MaxFR/AvFL) as a potential marker confirming OAB symptoms. We assumed, that the patients with OAB symptoms should rather demonstrate peak-shaped flow rate curve with immediate very high amplitude. The peak flow lasts only for a short period during urgency sensation.

Results

Our group of patients with pure OAB confirmed by the bladder diary and urodynamics (urodynamics was used to exclude other pathologies in LUT) consisted of only from 46 patients (6.6%) from total 692 evaluable patients. When comparing flow index between OAB and patients with other LUTS we found that the difference is statistically significant ($p<0.000$, U Mann-Whitney test) Figure 1. Similar correlation was found only for maximal flow rate ($p=0.0005$), but statistical significance is higher when calculating the flow index.

Interpretation of results

We found the strong correlation between uroflow parameters in patients with OAB subjective symptoms without any other LUTS comparing to all patients who underwent full clinical and urodynamic evaluation (FI 0.45 *vs* 0.52 respectively, $p<0.0000$). The lower FI the OAB more probable.

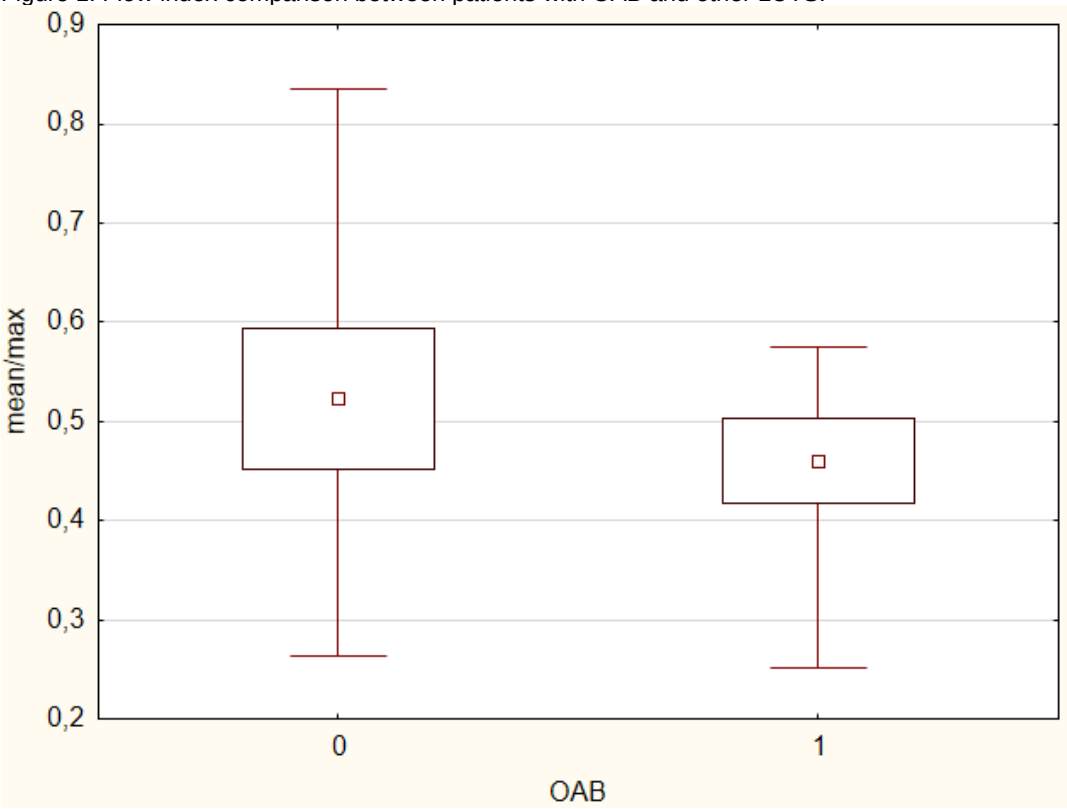
Concluding message

Simple, costless and objective marker used for the OAB diagnosis and monitoring of the disease is needed to help with proper management of the bothersome symptoms. We hope that the flow index will meet all those criteria after we investigate larger group of patients.

Table 1. Demographic and urodynamic parameters of evaluated patients.

		OAB patients					**OTHER LUTS patients**			
	N	**MEAN**	**MIN**	**MAX**	**SD**	**N**	**MEAN**	**MIN**	**MAX**	**SD**
AGE	46	54,50	28,00	81,00	13,99	646	55,96	23,00	89,00	10,54
MAX FLOW	46	24,07	10,30	63,60	11,52	646	29,67	10,10	64,90	12,84
MEAN FLOW	37	11,15	4,30	26,50	5,62	542	15,81	4,10	47,60	7,81
FLOW INDEX	37	0,45	0,25	0,58	0,08	542	0,52	0,25	0,84	0,10
MICT. VOLUME	46	244,78	48,00	672,00	135,76	646	310,74	18,00	1326,00	183,71
Max Cystometric Capacity	46	349,17	101,00	596,00	81,20	645	369,04	33,00	695,00	65,26

Figure 1. Flow index comparison between patients with OAB and other LUTS.



0 - patients without OAB symptoms; 1 – patients with OAB

References

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Disclosures

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