

THE ASSOCIATION BETWEEN FREQUENCY AS A SUBJECTIVE SYMPTOM AND OBJECTIVE FINDINGS ON BLADDER DIARIES AND URODYNAMIC INVESTIGATION.

Hypothesis / aims of study

The current ICS/IUGA definition of increased daytime urinary frequency is “the complaint that micturition occurs more frequently during waking hours than previously deemed normal by the woman.”(1) The corresponding annotation states that traditionally seven episodes of micturition during waking hours have been deemed as the upper limit of normal, though it may be higher in some populations. This new ICS/IUGA definition raises the question if self reported frequency is just to be regarded as a subjective item, or if it will also translate itself into differences in objective parameters. The aim of our study is to determine the association between subjective frequency symptoms and the objective variables of bladder diaries and findings on urodynamic investigation.

Study design, materials and methods

A retrospective cohort study was performed in a database of 6851 women with lower urinary tract symptoms who were referred to our urogynecological center between 2002 and 2009. As part of the routine work-up, all women filled out the Dutch version of the Urinary Distress Inventory (2). Because of the retrospective character of this study we didn't perform a power-analysis in advance. Afterwards, with the data gathered we calculated a power between 88.4% and 100%. The cohort is subdivided in three groups. Group I consisted of 2418 women without frequency (822 bladder diaries and 506 cystometries), group II consisted of 1850 women with frequency that were not at all or slightly bothered by their symptoms (769 bladder diaries and 471 cystometries), and group III consisted of 2608 women who experienced frequency and were moderately or greatly bothered (1655 bladder diaries and 1188 cystometries). Forty-eight hour bladder diaries and standardised filling cystometries of these women were matched to each individual. Items on the bladder diary that were used in this analysis were daytime urinary frequency, minimum and maximum voided volume, and average voided volume. On filling cystometry we recorded volume at first desire to void, normal desire to void, strong desire to void and maximum cystometric capacity. We used ANOVA statistics with Bonferroni correction (SPSS version 15.0) to compare the means between groups.

Results

In table 1 the differences in mean values between groups are presented. Table 2 shows the results of the ANOVA analysis.

Table 1. Characteristics of the three frequency groups

MEANS, volumes in millilitres			
Bladder diary	Group I	Group II	Group III
daytime urinary frequency	7(± 2,2)	8,6(±2,6)	9,7(±3,2)
minimum voided volume	115(±79)	97(±67)	81(±54)
average voided volume	275(±109)	244(±94)	205(±84)
maximum voided volume	509(±208)	480(±196)	412(±179)
Cystometry			
volume first desire to void	231(±134)	201(±120)	186(± 123)
volume normal desire to void	325(±156)	288(±145)	259(± 145)
volume strong desire to void	473(±201)	444(±181)	372(± 184)
volume maximum cystometric capacity	549(±187)	518(±177)	446(± 173)

Table 2. ANOVA

Bladder diary	Groups		Mean diff	SD	p
daytime urinary frequency	I	II	-1,57	0,14	,000
		III	-2,66	0,12	,000
	II	III	-1,1	0,12	,000
minimum voided volume	I	II	18,3	3,31	,000
		III	33,45	2,81	,000
	II	III	15,15	2,88	,000
average voided volume	I	II	29,09	5,15	,000
		III	67,17	4,36	,000
	II	III	38,08	4,50	,000
maximum voided volume	I	II	29,21	10,45	,016
		III	91,45	8,89	,000
	II	III	62,25	9,09	,000
Cystometry					
volume first desire to void	I	II	33,46	8,10	,000

		III	44,77	6,71	,000
	II	III	14,31	6,89	,000
volume normal desire to void	I	II	37,32	9,46	,000
		III	65,59	7,80	,000
	II	III	28,27	8,04	,000
volume strong desire to void	I	II	29,18	12,01	,046
		III	101,16	9,95	,000
	II	III	71,98	10,22	,000
volume maximum cystometric capacity	I	II	30,24	11,32	,023
		III	102,28	9,38	,000
	II	III	72,03	9,62	,000

Interpretation of results

Our study shows that the presence of self reported frequency translates itself in a statistical significant increase in daytime frequency and decrease in voided volumes as recorded on a 48-hour bladder diary. In addition these women experience significant lower filling sensations on cystometry. In women with self-reported frequency, the amount of bother experienced from the symptom also reflects itself in statistical significant differences in the objective parameters of the bladder diary and filling cystometry

Concluding message

Self reported frequency of micturition is not only a subjective feeling but translates itself in objective findings on bladder diaries and cystometries. With increasing bother of the frequency symptom the effects on objective parameters sustained which indicates that the cause of the frequency symptom may well not only be in the mind, but also in the bladder.

References

1. Neurourol Urodyn. 2003;22(2):97-104. Measuring health-related quality of life in women with urogenital dysfunction: the urogenital dysfunction inventory revisited. van der Vaart CH, de Leeuw JR, Roovers JP, Heintz AP. .
2. Neurourol Urodyn. 2010;29(1):4-20. An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. Haylen BT, de Ridder D, Freeman RM, Swift SE, Berghmans B, Lee J, Monga A, Petri E, Rizk DE, Sand PK, Schaer GN; International Urogynecological Association; International Continence Society.

<i>Specify source of funding or grant</i>	None
<i>Is this a clinical trial?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	No
<i>This study did not require ethics committee approval because</i>	retrospective cohort study
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	No