

Outcomes of the Urogenital Distress Inventory (UDI-6) for 20- to 50-Year-Old Females With Lower Urinary Tract Dysfunction in Qalubia Governorate, Egypt

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Submitted November 1, 2010 - Accepted for Publication November 17, 2010

ABSTRACT

INTRODUCTION: The 6-item Urogenital Distress Inventory (UDI-6) was recently validated on 68 women with lower urinary tract symptoms. The purpose of the present investigation was to use the UDI-6 to determine the types of lower urinary tract dysfunction across different age groups, as described by women from Qalubia Governorate, Egypt.

METHODS: The study group was recruited from females attending hospitals for urological consultation between February and August, 2009. There were 378 participants who were 20-50 years old. They had lower urinary tract symptoms for 3 months and a negative dipstick test. Each had a medical history, clinical evaluation, urine culture, and pelvic-abdominal ultrasound. All participants completed the Arabic version of the UDI-6. They were divided into 3 groups according to age: (1) 20-30 years (n = 144), (2) 31-40 years (n = 94), (3) 41-50 years (n = 140). Results were compared by age group using *t* tests; a Bonferroni adjustment was applied and significant differences were noted at $P < .001$.

RESULTS: The most common symptoms of lower urinary tract dysfunction were stress urinary incontinence and lower abdominal or genital pain. Stress urinary incontinence was present in 182 (48.1%) of the 378 patients. It occurred in 4.8% of patients age 20-30 years, 8.1% of patients age 31-40 years, and 17.2% of patients age 41-50 years. Urge incontinence was present in 84 patients (22.2%). The presence of mild and moderate stress incontinence and mild urge incontinence increased significantly in patients who were 41-50 years old (all with $P < .001$). Micturition difficulty and micturition frequency occurred in $< 7\%$ of patients. Lower abdominal or genital pain was described by 204 patients (53.9%). Micturition difficulty, micturition frequency, and lower abdominal or genital pain did not have significantly different distributions across age.

CONCLUSION: The most common symptoms of lower urinary tract dysfunction were stress urinary incontinence and lower abdominal or genital pain. The presence of mild and moderate stress incontinence and mild urge incontinence increased significantly in patients who were 41-50 years old. These patterns are similar to those reported by authors from other countries.

KEYWORDS: Stress urinary incontinence; Voiding dysfunction; Lower urinary tract symptoms

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CITATION: *UroToday Int J.* 2011 Feb;4(1):art 6. doi:10.3834/uij.1944-5784.2011.02.06

Abbreviations and Acronyms

LUTS, lower urinary tract symptoms
UDI, Urogenital Distress Inventory
UI, urinary incontinence

INTRODUCTION

The International Continence Society (ICS) defines urinary incontinence (UI) as, "the complaint of any involuntary leakage of urine" [1]. UI is a widespread condition in the general population that affects 19% of females and 10% of males over 60 years old [2]. Its prevalence increases exponentially as the population becomes older and more care-dependent [3,4].

UI has a negative impact on physical, psychological, and social well-being [5,6]. Nursing home residents with UI, in particular, often have incontinence-associated dermatitis, feelings of shame, and limited quality of life. UI is also associated with high economic costs, increased risk of institutionalization, frailty, fractures, and depression [7,8].

One way to assess the outcome of incontinence management procedures in clinical practice and research is to assess the patient's symptoms by validated questionnaire. UI is a symptom of many causes such as stress incontinence or detrusor overactivity. The physical, social, and emotional effects of lower urinary tract symptoms (LUTS) are poorly reflected in objective tests such as urodynamic studies [9]. Using a structured questionnaire ensures that all domains of LUTS are assessed, allowing changes in the symptom patterns and severity to be identified over time. Self-completed questionnaires are preferable to those that are interview-based because they minimize bias related to the caregiver [10].

A highly recommended scale is the Urogenital Distress Inventory (UDI). An "A-grade" recommendation was given to this scale by the International Consultation of Incontinence because published data indicate that the scale is valid, reliable, and responsive to change following standard psychometric testing. The questionnaire was shown to be relevant for persons with UI [11].

The UDI was recently validated in Arabic [12], but it was tested on only 68 patients with LUTS. Therefore, little is known about the responses of Arabic-speaking women with lower urinary tract dysfunction from Egypt. There may be differences in their responses to the questionnaire when compared with women from other countries because of lifestyle or cultural variations. Therefore, the purpose of the present prospective investigation was to use the 6-item UDI to determine the types of lower urinary tract dysfunction across different age groups, as described by women from Qalubia Governorate, Egypt.

METHODS

The protocol of this prospective investigation was approved

by the ethics committee of Benha Faculty of Medicine. All participants provided written informed consent. The study was conducted between February 1, 2009 and August 1, 2009.

Participants

The study group was recruited from females attending Benha University Hospital and other hospitals in Qalubia Governorate, Egypt. The women were attending for urological consultation.

There were 378 participants who were positive for lower urinary tract dysfunction. *Positive cases* were defined as females with LUTS for 3 months with a negative dipstick test. All were 20-50 years old. Exclusion criteria were: (1) active urinary tract infection, (2) neurological lesion, (3) associated bladder mass, (4) previous pelvic organ operation, and (7) pregnancy.

Procedures

All participants completed the Arabic version of the short form of the Urogenital Distress Inventory, which contains 6 items (UDI-6) (Figure 1). The survey was administered through face-to-face interview by the same resident. The participants also underwent a medical history, clinical evaluation, urine culture, and pelvic-abdominal ultrasound.

The 378 women were classified into 3 groups according to age: (1) 20-30 years ($n = 144$), (2) 31-40 years ($n = 94$), (3) 41-50 years ($n = 140$). Data were collected, tabulated, and statistically analyzed to determine the frequency of different forms of lower urinary tract dysfunction in the study group across age categories. The outcome measures were the 6 items on the UDI-6, related to stress incontinence, urge incontinence, micturition difficulty, micturition frequency, and lower abdominal or genital pain. Standard scores (z scores) were created. Age-group differences for each outcome measure were analyzed with a t test. Each age group was compared separately for each variable at each level of severity. Therefore, a Bonferroni adjustment was applied; significant differences were noted at $P < .001$.

RESULTS

Table 1 contains the results of the 6-item questionnaire. The z scores and probability values numbered 1, 2, and 3 on the table represent comparisons of age group 1 (20-30 years) with group 2 (31-40 years), group 1 with group 3 (41-50 years), and group 2 with group 3, respectively.

Stress urinary incontinence was a common symptom of lower urinary tract dysfunction in the study group, present in 182 (48.1%) of the 378 patients. It was present in 4.8% of patients in group 1, 8.1% of the patients in group 2, and 17.2% of the patients in group 3. There were significantly more patients in

Figure 1. The Urogenital Distress Inventory (UDI-6) Arabic Version and English Translation.
doi: 10.3834/uj.1944-5784.2011.02.06f1

Urogenital Distress Inventory (UDI-6): Arabic Version

؟ضررمل لك لذ ةدش وه امف شدح نإو ةيلاتلا ضار عأل نم ءيشل تضرعت له

3	2	1	0	
				1- زيادة عدد مرات التبول.
				2- عجلة في التبول وسلس بول لا إرادي.
				3- سلس بولي جهدي مع الحركة والكحة والعطس.
				4- كمية قليلة من سلس البول.
				5- صعوبة في تفرغ المثانة.
				6- ألم أسفل البطن أو منطقة الفرج.

دجوي ال (0) لي-لق (1) طس وتم (2) قرشكب (3)

English Translation

1. Do you experience frequent urination? If yes, how does it affect you?
2. Do you experience urine leakage related to the feeling of urgency? If yes, how does it affect you?
3. Do you experience urine leakage related to physical activity, coughing or sneezing? If yes, how does it affect you?
4. Do you experience small amounts of urine leakage (drops)? If yes, how does it affect you?
5. Do you experience difficulty emptying your bladder? If yes, how does it affect you?
6. Do you experience pain in lower abdominal or genital area? If yes, how does it affect you?

Rating Scale

(0) not at all, (1) somewhat, (2) moderately, (3) quite a bit

Adapted from Altaweel W, Seyam R, Mokhtar A, Kumar P, Hanash K. Arabic validation of the short form of Urogenital Distress Inventory (UDI-6) questionnaire. *Neurourol Urodyn.* 2009;28(4):330-334.

group 3 (age 41-50 years) with both mild and moderate stress incontinence when compared with the number of patients in the youngest group (both with $P < .001$). Similarly, there were significantly more patients in group 3 with mild stress incontinence when compared with the number of patients in group 2 (age 31-40) ($P < .001$). No other group differences were

statistically significant.

Urge incontinence was present in 84 patients (22.2%). It was present in 3% of patients in group 1, 2.7% of the patients in group 2, and 7.9% of the patients in group 3. There were significantly more patients in group 3 (age 41-50 years) with

Table 1. Outcomes of the Urogenital Distress Inventory (UDI-6) (N = 378).

doi: 10.3834/uj.1944-5784.2011.02.06t1

Outcome Measure	Group 1 20-30 Years (n = 144)		Group 2 31-40 Years (n = 94)		Group 3 41-50 Years (n = 140)		z			P		
	n	% n	n	% n	n	% n	1 ^b	2 ^c	3 ^d	1 ^b	2 ^c	3 ^d
Stress incontinence												
Mild	36	4.1	44	7.5	78	14.6	2.74	6.75	3.59	ns	<.001	<.001
Moderate	6	0.7	2	0.3	14	2.6	0.86	2.97	3.19	ns	<.001	ns
Severe	0	0	2	0.3	0	0	1.73		1.35	ns		ns
Total	42	4.8	48	8.1	92	17.2						
Urge incontinence												
Mild	16	1.8	14	2.4	34	6.4	0.75	4.41	3.21	ns	<.001	<.001
Moderate	10	1.2	0	0	6	1.1	2.59	0.02	2.57	ns	ns	ns
Severe	0	0	2	0.3	2	0.4	1.73	1.82	0.09	ns	ns	ns
Total	26	3.0	16	2.7	42	7.9						
Micturition difficulty												
Mild	56	6.4	22	3.8	26	4.9	2.12	1.13	0.9	ns	ns	ns
Moderate	2	0.2	0	0	0	0	1.16	1.1		ns	ns	
Severe	2	0.2	0	0	0	0	1.16	1.1		ns	ns	
Total	60	6.8	22	3.8	26	4.9						
Micturition frequency												
Mild	40	4.5	32	5.5	32	6.0	0.77	1.17	0.37	ns	ns	ns
Moderate	0	0	0	0	2	0.4		1.82	1.48		ns	ns
Severe	2	0.2	0	0	0	0	1.16	1.1		ns	ns	
Total	42	4.7	32	5.5	34	6.4						
Pain^a												
Mild	82	9.3	50	8.5	48	9.0	0.49	0.2	0.26	ns	ns	ns
Moderate	8	0.9	6	1	4	0.9	0.22	0.32	0.49	ns	ns	ns
Severe	0	0	6	1	0	0	3.01		2.35	ns		ns
Total	90	10.2	62	10.5	52	9.9						

^aLower abdominal or genital. ^bGroup 1 vs group 2; ^cgroup 1 vs group 3; ^dgroup 2 vs group 3. Abbreviation: ns, nonsignificant ($P > .001$).

mild urge incontinence when compared with the number of patients in the 2 younger age groups (both with $P < .001$). There were no significant age group differences for any of the other comparisons.

Micturition difficulty and micturition frequency were each present in 108 patients (28.6%). There were no significant age group differences for these outcome measures.

Lower abdominal or genital pain was described by 204 patients (53.9%). It was present in 10.2%, 10.5%, and 9.9% of the first, second, and third groups, respectively. There were no significant age group differences in the number of patients with these symptoms.

DISCUSSION

Stress urinary incontinence is a common problem, particularly for the aging population. Melville et al [13] stated that the prevalence of stress urinary incontinence was 17% in 40-49 year-old females in the USA in a population-based survey conducted in 2005. In 2000, Fitzgerald et al [14] found that the prevalence of stress urinary incontinence was 17.6% in working women younger than 50 years old. This also in agreement with Corcos and Schick [15] who found a 13.6% prevalence of SUI in Canadian females older than 35 years old.

In the present study, stress urinary incontinence was the most common feature of lower urinary tract dysfunction in the third (oldest) group of patients with LUTS (17.2%) and a common

symptom among all of the patients with LUTS (48.1%), regardless of age. This is in agreement with Milsom et al [16]. It is also in agreement with Irwin et al [2] who found that urinary incontinence is a widespread condition affecting 19% of females older than 50 years.

Mild urge incontinence was significantly more common in patients between 41 and 50 years old. The prevalence of mild urge urinary incontinence significantly increased with age. This is in agreement with Milsom et al [16]. They found no significant difference between patients age 20-30 years and patients age 31-40 years in the presence of urge incontinence (each about 3%). Melville et al [13] agreed that the prevalence of urge incontinence was 3% in 30-39 year-old females. The frequency of urge incontinence in 41-50 year-old patients in the present study was 7.9%. Waetjen et al [17] found that the prevalence of urge urinary incontinence was 9% in 42-52 year-old females and 6.5% in females between 20 and 40 years old in the USA. Minassian et al [18] and Zhu et al [19] stated that the prevalence of urge urinary incontinence was 10% in women > 20 years old in 2008 in the USA and China, respectively. In 2004, Corcos and Schick [15] found a 6.5% prevalence for urge incontinence in females older than 20 years in Canada.

There were no significant age-group differences in the number of patients with micturition frequency in the present study. Tanagho [20] stated that frequency of urination rises dramatically from 2.0% in the youngest group (ages 18-24) to 19.1 in those 65 to 74 years of age. These older ages were not represented in the present study.

There were no significant age-group differences in the number of patients with micturition difficulty in the present study. Cheater et al [21] explained that difficulty with micturition typically decreases with age, probably due to age-related laxity of pelvic musculature and connective tissue supporting the urethra. These changes may not occur prior to age 50, which was the age of the oldest patients in the present study.

Pain in the lower abdominal or genital area was present in 53.9% of all patients with LUTS in the present study, representing approximately 10% of patients in each age group. Its frequency was not significantly different across age groups. Verhaak et al [22] said that the prevalence of chronic benign pain in the general population was at least 10% in the USA in 1998. In 2009, Song et al [23] reported the presence of pelvic pain in 4.5% of Chinese women over 60.

CONCLUSIONS

The most common symptoms of lower urinary tract dysfunction

were stress urinary incontinence and lower abdominal or genital pain. The presence of mild and moderate stress incontinence and mild urge incontinence increased significantly in patients who were 41-50 years old. These patterns are similar to those reported by authors from other countries.

Conflict of Interest: none declared.

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