Patient Perceptions of Physical and Emotional Discomfort Related to Urodynamic Testing: A Questionnaire-based Study in Men and Women With and Without Neurologic Conditions

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OBJECTIVE To determine predictors of physical and emotional discomfort associated with urodynamic testing in men and women both with and without neurologic conditions.

METHODS An anonymous questionnaire-based study was completed by patients immediately after undergoing fluoroscopic urodynamic testing. Participants were asked questions pertaining to their perceptions of physical and emotional discomfort related to the study, their urologic and general health history, and demographics. Logistic regression was performed to determine predictors of physical and emotional discomfort.

RESULTS A total of 314 patients completed the questionnaire representing a response rate of 60%. Half of the respondents (50.7%) felt that the examination was neither physically nor emotionally uncomfortable, whereas 29.0% and 12.4% of respondents felt that the physical and emotional components of the examination were most uncomfortable, respectively. Placement of the urethral catheter was the most commonly reported component of physical discomfort (42.9%), whereas anxiety (27.7%) was the most commonly reported component of emotional discomfort. Presence of a neurologic problem (odds ratio, 0.273; 95% confidence interval, 0.121-0.617) and older age (odds ratio, 0.585; 95% confidence interval, 0.405-0.847) were factors associated with less physical discomfort. There were no significant predictors of emotional discomfort based on our model.

CONCLUSION Urodynamic studies were well tolerated regardless of gender. Presence of a neurologic condition and older age were predictors of less physical discomfort. These findings are useful in counseling patients regarding what to expect when having urodynamic procedures. UROLOGY 85: 547–551, 2015. © 2015 Elsevier Inc.

Urodynamic studies represent a series of tests conducted to determine bladder function and physiology.[1] These tests, however, are invasive in nature and involve the placement of urethral and rectal catheters, filling the bladder with fluid, voiding on demand and in front of other people, and often the use of x-ray or fluoroscopy. In addition, urodynamic testing has been shown to have associated morbidity including urinary retention, dysuria, and urinary tract infections.[2] For these reasons, it is not surprising that patients undergoing urodynamic testing may experience physical and emotional discomfort.[3-9]

Other studies have investigated discomfort related to urodynamic testing; however, these studies have been limited to women alone[4,8] or to men and women without neurologic conditions.[3,5-7,9] Additionally, prior studies obtained general information pertaining to whether or not physical or emotional discomfort was present during the study but did not explore individual components of the study or factors that may be driving each type of discomfort, such as age, neurologic status, educational status, functional status, and the patient's underlying symptoms.

To address these knowledge gaps, we designed an anonymous questionnaire-based study administered to all

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consenting patients, including men and women with and without neurologic conditions, immediately after urodynamic testing. The primary goals of this study were to determine which part of the study (ie, physical vs emotional discomfort) was considered to be most bothersome by patients and to determine whether there were any factors that were predictive of patients who experienced each type of discomfort. Findings from this study will be helpful in counseling future patients undergoing urodynamic testing and in designing and implementing measures aimed at decreasing discomfort in this patient population.

METHODS

We performed an anonymous questionnaire-based survey of patients undergoing their regularly scheduled fluoroscopic urodynamic studies in our clinic from June 2013 through May 2014. All urodynamic studies were performed following the International Continence Society's good urodynamic practices[1] at 2 different urodynamic facilities within our institution. Prestudy description of the procedure was provided to each patient by their own physician. Urodynamic testing was performed by either a nurse or a medical assistant trained in urodynamics, with the attending physician in the room. The nurse or medical assistant typically placed the urodynamic catheters and gets the patient ready for the study, and the attending typically comes into the urodynamic room on the commencement of bladder filling. It is our standard practice to perform urodynamics in the seated position for ambulatory patients and in the supine position for nonambulatory patients. We use an 8-Fr dual microtip urodynamic catheter at a fill rate of 30-50 mL/min of contrast for the first 250 mL and then transition to normal saline for the remainder of the filling. Rectal pressure is measured using a rectal balloon catheter filled with saline. All pressure transducers are zeroed to atmospheric pressure at the level of the bladder at the beginning of the procedure. Provocative measures, including cough and Valsalva, are performed at 200 and 400 mL, where appropriate. Perineal pads are applied to measure electromyography. Fluoroscopy is used during the filling and voiding phases of the study, where appropriate.

The questionnaire was created based on a thorough review of the existing literature. It consisted of 19 questions on 3 pages relating to the patients' experience of the test and their demographic characteristics (Appendix 1). As part of the questionnaire, patients were asked what was the worst part of the test (physical discomfort, emotional discomfort, neither, or both were equally bad), what was the worst part of the physical discomfort (placement of the urethral catheter, placement of the rectal catheter, filling the bladder with fluid, holding a full bladder, urinating, nausea, light headedness or dizziness, feeling hot or sweaty, other, none), and what was the worst part of the emotional discomfort (anxiety or worry, embarrassment, fear, not understanding what was happening, other, none). Additionally, they were asked if the study was better, worse, or the same as they expected. Patients were also asked how many urodynamic tests they had undergone in the past, whether or not they had a cystoscopy in the office before, whether or not they had a rectal catheter placed during their test, whether or not they had a neurologic problem (defined as spinal cord injury, multiple sclerosis, spina bifida, or stroke), age, gender, race, educational status, whether they live alone or with other people, self-rated health status on the day of the test (excellent, very good, good, fair, poor), and their current lower urinary tract symptoms (leakage of urine or urinary incontinence, difficulty urinating on my own [problems starting with urination, incomplete bladder emptying, and urinary retention], sense of urgency [having a strong urge to urinate], sense of frequency [having to go to the bathroom to urinate often], no bladder symptoms or problems).

The initial questionnaire was pilot-tested in the clinic with 10 subjects for face and content validity. Feedback was provided verbally to the study investigator both during and after questionnaire completion by each respondent. Changes were made to the wording and content of the questionnaire based on this feedback. Data collected from pilot testing were not included in the final analysis. During the study period, written informed consent was obtained before the commencement of each urodynamic study for patients who were willing to participate. This study included 2 sites within 1 academic urologic practice consisting of 5 fellowship-trained urologists in neurourology and voiding dysfunction. Patients completed the questionnaire immediately after their urodynamic test while they were waiting to talk with their physician, as opposed to after talking to their physician, to ensure that the results of the study or the conversation with the physician did not influence their perceptions. To maintain anonymity of the responses, patients were instructed to return the completed questionnaire to a designated collection envelope on their way out of the clinic. No personal identifying data were collected as part of the instrument.

Multivariate logistic regression was used to determine predictors of physical and emotional distress associated with urodynamic testing while controlling for various patient characteristics including prior testing, prior cystoscopy, presence of a rectal catheter during the study, age, race, gender, presence of a neurologic condition, whether or not the patient lives alone, education, current self-rated health status, and current lower urinary tract symptoms. Analyses were performed using SAS, version 9.3, software (SAS Institute, Cary, NC). This study was approved by our Institutional Review Board (HUM00075334).

RESULTS

A total of 314 patients completed the questionnaire and were included in the analyses, representing a response rate of 60%. Of these patients, 40% were men and 25% had a neurologic condition affecting bladder function. This study was the first urodynamic study for 62% of patients, 54% reported having had an office cystoscopy in the past, and 87% had a rectal catheter placed during the study. This study population was fairly well educated, with 19% having attended graduate school and over 50% having attended at least some college. In terms of symptoms prompting urodynamic evaluation, 61% of patients reported urinary incontinence, 42% reported difficulty urinating or urinary retention, 43% and 46% reported urgency and frequency, respectively, and 5% reported that they had no urologic symptoms (Table 1).

Values for self-reported physical and emotional distress related to urodynamic testing are provided in Table 2. When having to choose whether physical or emotional discomfort related to the test was more bothersome, 29% of respondents reported physical discomfort, 12%