185 Incontinence and Stream Abnormalities

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Definition

Urinary flow is defined in terms of the size and force of the patient's stream. The caliber and force of the urinary stream vary greatly. The normal urinary stream should be continuous for at least 80% of urination.

Hesitancy is a delay in initiating urination. *Intermittency* describes a urinary stream that is not continuous. *Incontinence* is the involuntary loss of urine.

Stress incontinence usually results from pelvic relaxation or damage to the urinary sphincter. *Urge incontinence* is usually secondary to inflammatory changes in the urinary stretch receptors. *Overflow incontinence* occurs when there is minimal emptying of a distended bladder, leaving a high bladder volume and only a short period before the next urination. *Total incontinence* implies a continual discharge of urine. *Enuresis* is involuntary incontinence, but this term is commonly used for nocturnal incontinence while asleep.

Technique

Questions regarding the size and force of the urinary stream in female patients are rarely fruitful unless extreme outlet obstruction is present. The importance of this question to male patients from infancy through adulthood cannot be overstated, however, and the quality of the history reflects the tenacity and experience of the clinician. The normal caliber and force of the urinary stream varies among individuals, and the examiner should attempt to elicit the history of changes in the urinary stream rather than the specific caliber or force. Begin by asking, Have you had any decrease in the size of your stream? Then pointedly ask the patient or an infant's parent questions easily related to several reference points. For example, Can the infant urinate across the bed? Could you write your name in the snow or on a sidewalk? Are you having to stand closer to the toilet or over the toilet to prevent going on your shoes or on the floor? Is your stream as strong as it was a few years ago? Observe the patient's urinary stream. Accurate documentation of the urinary flow may be obtained by timed voided specimens or by dynamics.

Hesitancy is not usually mentioned by the patient. Ask, Do you have to wait awhile for your stream to start? This should be distinguished from the "shy bladder" where the patient experiences difficulty voiding in the presence of a nurse, physician, or other person.

Intermittency is evaluated by asking, Once you have started urination, can you pass 80 to 90% in a continuous stream? This eliminates the questionably significant terminal dribbling experienced by many normal men. Two features are notable if one observes the voiding of a male patient with hesitancy and intermittency: straining is often apparent in initiating and maintaining the stream, and the stream often slows or stops when he takes a breath.

All patients should be asked if they have any difficulty controlling urination or if they have loss of urine at inappropriate times. If the response is positive, a detailed evaluation of the nature of incontinence is necessary. Determine whether incontinence occurs with or without the patient's knowledge; that is, does the patient know he is going to urinate but is unable to get to the bathroom on time, or is incontinence noted only indirectly when the clothes and bed are found to be wet. A history of stress incontinence can be elicited by asking the patient if involuntary urination occurs during coughing, sneezing, straining, or lifting heavy objects. Urgency, or urge incontinence, is suggested when the patient states that he feels a strong desire to urinate and cannot suppress the flow of urine before reaching the toilet. Ask if bedwetting occurs at night (nocturnal incontinence, or enuresis), or occurs both at night and in the daytime. Ask if urine leaks or dribbles all the time, as in total incontinence, or in intermittent small amounts, as in overflow incontinence.

Basic Science

The factors controlling the caliber of the urinary stream and the force of urinary flow are primarily mechanical. They are secondarily influenced by volitional control, however. The force or pressure of the flow is initially generated by the bladder with some modification by the patient's use of accessory abdominal muscles. The caliber and force of flow are also influenced by the caliber of the bladder outlet. The bladder outlet refers to the bladder neck, posterior and anterior urethra, and the urethral meatus. Posterior urethral obstructions produce a stream with little force. Distal urethral obstructions, usually strictures, may produce a stream of markedly reduced caliber but normal force. With distal obstructions, the stream may be split. Difficulty in initiating and maintaining voiding is found where there is lower urinary obstruction or ineffective bladder contractility, or both.

Clinical Significance

Alterations in the flow characteristics of the urinary stream are usually caused by obstruction. This leads to a diminution in both caliber and flow. In infants and children the obstruction may be congenital with posterior urethral valves, congenital bladder neck contracture, urethral meatal stenosis, or phimosis. In adults, obstructions are commonly secondary to urethral stricture disease, prostatic hyperplasia, or carcinoma of the prostate. In females, urethral diverticula and cystoceles may lead to diminution in flow. In both males and females, the flow pattern of the urinary stream may be influenced by bladder neoplasms, urethral diverticula, or neuropathic changes of the bladder.

All forms of incontinence may be secondary to neuropathic disturbances of the bladder. Thorough investigation of each particular form should be carried out. Stress incontinence classically occurs in the multigravida or in the elderly female who has pelvic relaxation with a cystocele or urethrocele, or both. These findings are confirmed by the Valsalva maneuver during pelvic examination. Stress incontinence may also occur in patients who have had previous trauma or surgical procedures near the bladder neck and urinary sphincters, thereby weakening the control of retention of urine. As previously stated, urge incontinence is usually seen in conjunction with inflammatory processes of the bladder or posterior urethra. Overflow incontinence may occur in neuropathic disturbances but is more commonly associated with bladder outlet obstruction where the patient has urinary retention and frequently voids very small amounts of urine. Total or true incontinence may occur in patients who have a neuropathic disturbance of the bladder or in whom the urinary sphincters are bypassed by the flow of urine. Examples of the latter would include patients who have vesicovaginal or urethrovaginal fistulas, and patients with ectopic ureters that empty into the vagina or urethra at a point distal to the urinary sphincters. Enuresis may be a symptom of outflow obstruction and is often difficult, in the adult, to distinguish from overflow incontinence. Classic enuresis occurs in children and is present from birth. The exact dynamics of enuresis are unknown, but rarely does investigation need to be undertaken in patients before the age of 5 or 6. Beyond the age of 6, total control of urination is present in 95% of children. Thorough neurologic examinations and urinary tract x-rays should be obtained in adult patients with enuresis because of the high prevalence of associated genitourinary pathology.

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