Diagnosing Urinary Incontinence with 3 Simple Questions

Brown JS, Bradley CS, Subak LL, et al. The sensitivity and specificity of a simple test to distinguish between urge and stress urinary incontinence. Ann Intern Med 2006;144:715–23.

Study Overview

Objective. To test the accuracy of a 3-item questionnaire (3IQ) in distinguishing between stress urinary incontinence (SUI) and urge urinary incontinence (UUI) in women.

Design. Multicenter, prospective cohort study.

Setting and participants. Women seen at 5 academic centers in the United States from April to December 2004 who were ambulatory, aged ≥ 40 years, reported ≥ 3 episodes of incontinence per week for at least 3 months, did not have a urinary tract infection, and were bothered by their incontinence. Participants were asked to complete the 3IQ at the first visit and again 7 to 10 days later at home (to determine reproducibility). At the second visit, participants underwent an extended evaluation, which included medical, surgical, reproductive, and incontinence history; review of all medications; physical examination; pelvic examination; cough stress test; postvoid residual volume measurement; and review of a 3-day voiding diary.

Main outcome measures. Sensitivity, specificity, and likelihood ratios of the 3IQ compared with the gold standard extended evaluation.

Main results. Of 468 eligible women, 331 were enrolled. 301 patients (mean age, 56.4 years) completed the 3IQ and the extended evaluation. Participants were racially diverse; most were well educated and self-reported good to excellent health. On average, participants reported a 7-year duration of incontinence, and two thirds rated their incontinence as moderate to severe. Compared with the extended evaluation, the 3IQ had a sensitivity of 0.75 (95% confidence interval [CI], 0.68–0.81), a specificity of 0.77 (95% CI, 0.69–0.84), and a positive likelihood ratio of 3.29 (95% CI, 2.39–4.51) for classification of UUI. For SUI, the sensitivity was 0.86 (95% CI, 0.79–0.90), specificity was 0.60 (95% CI, 0.51–0.68), and the positive likelihood ratio was 2.13 (95% CI, 1.71–2.66).

Conclusion. This 3IQ has fair accuracy in classifying UUI and SUI and may be appropriate for use by primary care providers.

Commentary

Urinary incontinence (UI) impacts the daily lives of more than one third of women older than 40 years, and the incidence of UI increases with age [1,2]. The estimated annual costs associated with UI and its health-related consequences range from $12 to $16 billion, comparable with that of osteoporosis or arthritis [3]. Further, there is strong association between UI and depression, social isolation, and fall risk [3]. Despite effective treatments that include pelvic muscle strengthening, pharmacologic therapy, and surgery, UI appears to be significantly under-reported and underdiagnosed due in part to current guidelines recommending a time-consuming and expensive process that is not feasible in primary care settings [1,3]. Brown and colleagues evaluated a quick, simple, reproducible 3IQ that can identify and classify UUI and SUI with reasonable accuracy.

When participants completed the 3IQ 10 days after initial presentation, the κ statistic for the reproducibility of the 3IQ was fair to good (0.69 [95% CI, 0.61–0.77] for UUI and 0.65 [95% CI, 0.56–0.74] for SUI). The extended evaluation found that 39.5% of participants had UUI, 43.9% had SUI, 14% had mixed incontinence, and 2.7% had other types of incontinence, results similar to those of previous studies [2].

The results of this study suggest that 25% of women with UUI and 14% of women with SUI will be missed using the 3IQ. In addition, using the 3IQ would result in inappropriate treatment for UUI in 23% of women and for SUI in 40% of women who have other types of incontinence. Urologists and urogynecologists consulted by the authors all agreed that the delay in correct diagnosis and treatment based on the 3IQ would not be dangerous, and no adverse events during the study were attributable to the 3IQ. The reproducibility of the 3IQ is fair, and the accuracy is modest. However, given the ease of use and the mild consequences for misclassification and inappropriate treatment, primary care clinicians might consider using the 3IQ to diagnose and initiate therapy and then refer to a specialist if adequate control is not established in 6 to 12 months.

Applications for Clinical Practice

Primary care clinicians can use the 3IQ to help distinguish UUI from SUI so that effective therapies (ie, pelvic floor

exercises or antimuscarinic drugs or anticholinergic drugs, depending on the type of UI) can be initiated prior to extended evaluation.

—Review by Mark S. Horng, MD

References

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