



Re: Solomon-Greenwell as the most accurate nomogram for female bladder outlet obstruction

Respuesta: Solomon-Greenwell como el nomograma más preciso para la obstrucción de la salida de la vejiga femenina

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To the editor

We read with great interest the article by Castro-Núñez *et al.*⁽¹⁾ considering that to date there is no consensus on the urodynamic (UDS) criteria for diagnosing female bladder outlet obstruction (fBOO). We believe it is necessary to comment on two aspects of the article for a better interpretation of its results.

First it is necessary to clarify that the ICS document of 2002 defines “dysfunctional voiding” as an “intermittent and/or fluctuating flow rate due to involuntary intermittent contractions of the peri-urethral striated muscle during voiding,⁽²⁾ in neurologically normal individual”, and that this term is no longer recommended in the latest ICS-SUFU standard of pressure-flow study analysis.⁽³⁾ That is why we think that the authors of the commented article meant to refer to women diagnosed with “voiding dysfunction” (as a generic term) and not to women diagnosed with “dysfunctional voiding”. “Voiding dysfunction”, “a diagnosis by symptoms and urodynamic investigations, is defined as abnormally slow and/or incomplete micturition” by the ICS, “based on a repeated measurement to confirm abnormality”.⁽⁴⁾

Secondly, we would like to make some comments on the criteria used to diagnose fBOO, which certainly differ in quality.⁽⁵⁾

1) Any fBOO criteria should include not only urine flowrate but also detrusor pressure; in this sense, Farrar *et al.* criterion is not adequate for this purpose.⁽⁶⁾

2) The criteria of Chassagne *et al.*⁽⁷⁾ Lemack and Defreitas involved the evolution of UDS diagnostic by the same group of researchers, in such a way that only the last study should be considered ($p_{detqmax} \geq 25 \text{ cmh}_2\text{o} + Q_{max} \leq 12 \text{ ml/s}$).^(8,9)

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3) In our opinion the Blaivas and Groutz nomogram is not good for two reasons: for its development it included patients with stress urinary incontinence in the control group (that have less bladder outlet resistance),⁽¹⁰⁾ and it considers two different voidings and uses a detrusor pressure that does not correspond to the moment of lowest urethral resistance (pdetmax not pdetqmax).

4) Solomon *et al.*⁽¹¹⁾ defined functional and anatomic fBOO using the video UDS criterion of Nitti *et al.*⁽¹²⁾ They proposed a female bladder outlet obstruction index (BOOIf) calculated using the formula $BOOIf = pdetqmax - 2.2 \times Qmax$. For BOOIf values of >5 and >18 the probability of fBOO was 50% and 90%, respectively. That's why we consider better to use values of >18 .

References

1. **Castro-Núñez P, Noyola-Ávila I, Maldonado-Alcaraz E, Moreno-Palacios J, Amaya FST.** Solomon-Greenwell as the most accurate nomogram for female bladder outlet obstruction. *Revista Mexicana de Urología.* 2022;82(6):1–5. doi: <https://doi.org/10.48193/revistamexicanadeurologia.v82i6.873>
2. **Abrams P, Cardozo L, Fall M, Griffiths D, Rosier P, Ulmsten U, et al.** The standardisation of terminology in lower urinary tract function: report from the standardisation sub-committee of the International Continence Society. *Urology.* 2003;61(1):37–49. doi: [https://doi.org/10.1016/s0090-4295\(02\)02243-4](https://doi.org/10.1016/s0090-4295(02)02243-4)
3. **Rosier PFWM, Gammie A, Valdevenito JP, Speich J, Smith P, Sinha S, et al.** ICS-SUFU standard: Theory, terms, and recommendations for pressure-flow studies performance, analysis, and reporting. Part 2: Analysis of PFS, reporting, and diagnosis. *Neurourol Urodyn.* 2023; doi: <https://doi.org/10.1002/nau.25187>
4. **Haylen BT, de Ridder D, Freeman RM, Swift SE, Berghmans B, Lee J, et al.** An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. *Int Urogynecol J.* 2010;21(1):5–26. doi: <https://doi.org/10.1007/s00192-009-0976-9>
5. **Valdevenito JP, Averbek MA, Sinha S, Finazzi-Agro E, Gammie A. Re: Karl H. Pang, Riccardo Campi, Salvador Arlandis, et al.** Diagnostic Tests for Female Bladder Outlet Obstruction: A Systematic Review from the European Association of Urology Non-neurogenic Female LUTS Guidelines Panel. *Eur Urol Focus* 2022;8:1015–30. *Eur Urol Focus* 2023;S2405-4569(23)00030-5. doi: <https://doi.org/10.1016/j.euf.2023.01.015>
6. **Farrar DJ, Osborne JL, Stephenson TP, Whiteside CG, Weir J, Berry J, et al.** A urodynamic view of bladder outflow obstruction in the female: factors influencing the results of treatment. *Br J Urol.* 1975;47(7):815–22. doi: <https://doi.org/10.1111/j.1464-410x.1975.tb04062.x>
7. **Chassagne S, Bernier PA, Haab F, Roehrborn CG, Reisch JS, Zimmern PE.** Proposed cutoff values to define bladder outlet obstruction in women. *Urology.* 1998;51(3):408–11. doi: [https://doi.org/10.1016/s0090-4295\(97\)00634-1](https://doi.org/10.1016/s0090-4295(97)00634-1)
8. **Lemack GE, Zimmern PE.** Pressure flow analysis may aid in identifying women with outflow obstruction. *J Urol.* 2000;163(6):1823–8.
9. **Defreitas GA, Zimmern PE, Lemack GE, Shariat SF.** Refining diagnosis of anatomic female bladder outlet obstruction: comparison of pressure-flow study parameters in clinically obstructed women with those of normal controls. *Urology.* 2004;64(4):675–9; discussion 679–681. doi: <https://doi.org/10.1016/j.urology.2004.04.089>

10. **Blaivas JG, Groutz A.** Bladder outlet obstruction nomogram for women with lower urinary tract symptomatology. *Neurourol Urodyn.* 2000;19(5):553–64. doi: [https://doi.org/10.1002/1520-6777\(2000\)19:5<553::aid-nau2>3.0.co;2-b](https://doi.org/10.1002/1520-6777(2000)19:5<553::aid-nau2>3.0.co;2-b)
11. **Solomon E, Yasmin H, Duffy M, Rashid T, Akinluyi E, Greenwell TJ.** Developing and validating a new nomogram for diagnosing bladder outlet obstruction in women. *Neurourology and Urodynamics.* 2018;37(1):368–78. doi: <https://doi.org/10.1002/nau.23307>
12. **Nitti VW, Tu LM, Gitlin J.** Diagnosing bladder outlet obstruction in women. *J Urol.* 1999 May;161(5):1535–40.