

Pelvic Physical Therapy Distance Journal Club

May 3, 2023

Rebecca Giglio PT, DPT (M Health Fairview Resident – Minneapolis, MN)

Evidence for autonomic nervous system dysfunction in females with idiopathic overactive bladder syndrome. Hubeaux K, Deffieux X, Raibaut P, et al. *Neurourol Urodynam*. 2011; 30:1467-1472.

Introduction: Micturition and continence are largely under the control of the autonomic nervous system (ANS).

- Idiopathic overactive bladder (iOAB) is defined as urgency with or without urge incontinence that usually is associated with frequency and nocturia.
- The connection between ANS function/dysfunction and iOAB is not widely explored.

Aim/Primary Aim: To analyze results from autonomic cardiovascular testing in females with iOAB to see if ANS dysfunction could comprise part of the pathophysiology of iOAB

Study Design/Study Format: Prospective cohort study

Methods:

- Female patients presenting with a diagnosis of iOAB were enrolled.
 - All patients included in the study were diagnosed with iOAB after the exclusion was made of urinary infections, urological or neurological disorders. Exclusion criteria comprised of any medical history pathology which could affect autonomic dysfunction (including depression)
- All subjects were required to refrain from caffeine or alcohol intake for 3 hours prior to undergoing the study tests.
- After resting supine for 15 min, patients underwent global ANS CV testing comprising two sympathetic tests (hand grip exercise and cold pressor test), two parasympathetic tests (deep breathing and 30:15 ratio), and two mixed tests (Valsalva maneuver and blood pressure [BP] response to standing).

Results: Study group comprised of 23 females with diagnosed iOAB (with or without detrusor overactivity [DO]), and with or without a history of primary nocturnal enuresis), and control group of 29 healthy females.

Criteria	Study Group	Control Group
Mean Age	44 years (+/- 15 years)	40 years (+/- 15 years)
Menopausal	9	6
History of Nocturnal Enuresis	11	N/A
DO	14	N/A

The study group vs. control group revealed statistically significant results that the CV tests were more frequently positive in the study group. In particular, the sympathetic tests were significantly more positive in the study group and BP variation recorded during these tests was lesser than the control group. Comparisons between study group participants with or without DO reveal that those without DO had more frequently at least one of the sympathetic tests positive than those with DO ($P=0.03$). There was no significant difference between the two groups regarding age, menopausal status or a past history of depression.

Discussion:

- Just as LUTS in BPH are linked to metabolic syndrome and sympathetic overactivity, a similar association may be hypothesized in iOAB in females
- Our results suggest a sympathetic dysfunction in females with iOAB, with the sympathetic ANS known to be implicated directly in the storage phase of urine.

Limitations:

- Excluded those with associated stress urinary incontinence (SUI), a history of surgery for incontinence, known urological disease, or IBS
- Small N
- Vague description of “cured” psychiatric disorders in inclusion criteria

Conclusion/Summary: This study revealed an ANS dysfunction in females with iOAB. This leads to the conclusion that iOAB in females could comprise part of a global ANS dysfunction although more research is needed.

Clinical Application: ANS sympathetic desensitization techniques may be helpful in treating females with iOAB.

List Discussion Questions:

1. What are some ANS sympathetic desensitization techniques that you've had success with for iOAB treatment?
2. Those who have iOAB with positive sympathetic testing & lesser BP variation, should we be considering more CV autonomic training for PT intervention for this population?