Continence

The Journal of the
International Continence Society

Abstracts of the National Congress of the Italian Society of Urodynamics (SIUD) Rome, Italy, 15–17 June 2023

Publication of this supplement is supported by the Società Italiana di Urodinamica – SIUD

Società Italiana di Urodinamica
Continenza Neuro-Urologia Pavimento Pelvico

Materials and methods: SNM is considered as a III line treatment. Protocol was defined and approved by our Hospital Scientific Committee in 2008. Patients (pts) were treated according to this protocol: **(A)** pre-operative, **(B)** surgical, **(C)** post-operative and follow-up. **(A)** All pts underwent: clinical evaluation, urinalysis, blood exams, 48 h urinary/ bowel diaries, sacrum X-ray, renal/bladder US, UD evaluation, neurophysiological test, psychological evaluation, QoL. Pts with renal function (RF), upper urinary tract (UUT), mental impairment were excluded. Successful implant was considered when pts reported own satisfaction plus 50% improvement in 1/more of following parameters:leaking episodes/day, pads/day, PVR, intermittent catheterisms/day, episodes of faecal incontinence/day, defecation/day. **(B)** All pts underwent 2 stage technique. Implant was performed after successful control period of 2–8 weeks from advanced test, excluding worsening of RF and UUT. **(C)** Controls were performed at 1, 4, 12, 36, 52 weeks and then twice/year. Pts with a minimum of 12 months follow-up were included.

Results: From 2008 to 2021, 72 pts. (aged 11–19 yrs) underwent SNM.7 pts were excluded: 3 with follow-up <12 months, 4 did not meet criteria for II stage. Among 65 pts, 39 had neurogenic bladder (NB), 15 non neurogenic urinary retention, 8 overactive bladder, 6 bowel dysfunction with fecal incontinence. Overall success rate was 70% at 12 months and 65% later, maintaining during time. Early complications were:1 intraoperative electrode breaking during removal, 4 infection, 2 electrode removal. All required reoperation. Later complications were found in 9 pts:5 electrode breaking, 4 battery dislocation (infection, skin erosion), which required reimplant of new battery in contralateral side. Success rate in NB was 65% (80% iatrogenic injury, 90% peripheral neuropathy, 50% occult spinal dysraphysm and 0% myelomeningocele, lypomeningocele and complete SCI). 15 pts removed device for symptoms resolution.

Interpretation of results: Based on our results, careful selection seems mandatory to choosing correct indication and side of implant. Iatrogenic injury or peripheral lesion (incomplete damage) seems to offer best chance for positive response than SCI or MMC (complete damage). Younger age seems to offer a better response at cost of higher complications rate, probably relate to height grow-up and change in body mass index.

Conclusions: Careful pts selection, skills to perform implant and manage complications indicate that SNM in pediatrics must be used only in very few high level selected center, with a multidisciplinary team and high rate volume activity (minimum of 5 implants/year).

Continence 6S1 (2023) 100619
doi: https://doi.org/10.1016/j.cont.2023.100619

22 - Developing and validating the integrated bladder & bowel diary: Preliminary results of a new Italian tool to assess neurogenic lower urinary tract and bowel dysfunction

Marcello Lamartina [i], Alberto Manassero [ii], Eugenia Fragalà [iii], Giovanni Panariello [iv], Carmela Leone [v], Angela Di Girolamo [vi], Marilena Gubbiotti [vii], Julien Renard [viii], Achim Herms [ix], Giorgia Sciarrone [x], Silvia Ciarlariello [iii], Carlo Genova [vi], Stefania Musco [xi]

[i] *Urologia, Casa di Cura Candela, Palermo, Italia;* [ii] *Neuro-Urologia, Presidio Ospedaliero CTO Unità Spinale A.O.U. Città della Salute e della Scienza di Torino, Torino, Italia;* [iii] *Urologia, Unità Operativa Complessa di Urologia Ospedale G.B. Morgagni - L. Pierantoni, Forlì, Italia;* [iv] *UOC Medicina Riabilitativa, AOU San Giovanni e Ruggi d'Aragona, Salerno, Italia;* [v] *Unità Operativa Complessa di Neurologia, P.O. R. Guzzardi Vittoria, Ragusa, Italia;* [vi] *UOC Unità Spinale, Villa delle Ginestre, Palermo, Italia;* [vii] *Dipartimento di Urologia, Pelvic Unit, Ospedale S. Donato, Arezzo, Italia;* [viii] *Département de Chirurgie, Service D'urologie, Ente Ospedaliero Cantonale, ORBV e OIL, Università della Svizzera Italiana Lugano Svizzera Hopitaux Universitaire de Genève, Ginevra, Svizzera;* [ix] *Neuro-Urologische Ambulanz, Universitätsklinik fur Urologie, Innsbruck, Austria;* [x] *Unità Spinale, AOU Careggi, Firenze, Italia;* [xi] *SOD Neurourologia, AOU Careggi, Firenze, Italia*

Introduction and aim of the study: The aim of our study is to develop an Italian validated bladder and bowel diary for neurological patients using a psychometric validation protocol.

Materials and methods: We are conducting a multicentre prospective crossover randomized study recruiting spinal cord injury (SCI) and multiple sclerosis (MS) adults. Randomization is stratified for each single centre in a 1:1 ratio. All patients are asked to fill the diaries for 5 consecutive days. Group A is required to complete the integrated diary for 5 days and subsequently the diaries in separate form (bladder and intestinal diary). Conversely, separated diaries are firstly given to group B who complete the integrated form afterwards. Finally, each patient is asked to fill out a satisfaction questionnaire on the integrated diary. The following hypothesis has been established for the construct validity: (1) autonomic dysreflexia > in SCI above T6; (2) Urinary incontinence (UI) and faecal incontinence > in SCI than MS; (3) stress urinary incontinence > in sacral SCI; (4) urgency > MS than SCI. Cohen Kappa concordance is calculated considering the frequency of UI and evacuation. Kappa statistic with a $K = 0.7$ an error of 0.11 and a CI of 95% was used. A patient is considered incontinent if he experiences > 1 episode of UI on at least 3/5 days. A patient is considered constipated if he has < 3 spontaneous evacuations in 5 days.

Results: Data from 26 SCI and 13 MS (mean age 45 ± 11.6) were collected (20 group A and 19 group B). Median age of neurological illness was 10 years. Overall, 250 days were analysed in 25/39 patients. UI was observed in 25% of women and 18% of men ($p = 0.999$). Constipation was complained by 63% women and 53% men ($p = 0.262$). Recordings of UI showed an agreement of 92%. Whereas a k value of 60% was observed among patients defined as constipated (80% of agreement). At phase 1, UI was observed in 14.3% and 18% in integrated and separated diaries. While, in the second phase the percentage increased up to 27.3% (integrated) and 24.4% (separated diaries). Conversely, constipation was detected in 57.1% and 54.6% at phase 1 and in 45.5% and 50% at phase 2 respectively using the integrated and separated tools.

Interpretation of results: Although bladder and bowel diaries are commonly used in both clinical practice and research, a validated tool to concomitantly assess both systems in patients often suffering from more than one lower urinary and bowel dysfunction (e.g., neurological) is still missing. Despite the small sample our preliminary data shows a good agreement between the new integrated tool and the separated diaries.

Conclusions: Although it is not possible to provide evidence yet, this study shows the preliminary results of an Italian consensus process between experts, which not only aims to design an integrated tool in order to collect standardized and homogeneous data, but also to enhance patients' empowerment and improve their symptoms.

Continence 6S1 (2023) 100620
doi: https://doi.org/10.1016/j.cont.2023.100620

70 - Italian national big data on urodynamics: Relationship between clinical and urodynamics diagnosis

Emanuele Rubilotta [i], Francesco Ditonno [i], Matteo Balzarro [i], Marilena Gubbiotti [ii], Enrico Ammirati [iii], Stefania Chierchia [iii], Giuseppe Masiello [iv], Stefano Manodoro [v], Marianna Bevacqua [vi], Eugenia Fragalà [vii], Roberto Carone [iii], Gaetano De Rienzo [viii], Enrico Finazzi Agrò [ix], Luca Gemma [x], Sofia Giannone [xi], Marcello Lamartina [xi], Vincenzo Li Marzi [xii], Leonardo Martino [xiii], Stefania Musco [x], Eleonora Russo [xiv], Marco Spilotros [viii], Vito Mancini [xiii]

[i] *Azienda Ospedaliera Universitaria Integrata, Department of Urology, University of Verona, VERONA, Italia;* [ii] *San Donato Hospital, Department of Urology, Arezzo, Italia;* [iii] *Unipolar Spinal Cord Unit, Department of Neuro-Urology, AOU Città della Salute e della Scienza, Turin, Italia;* [iv] *ASL Bari, Department of Urology, Di Venere Hospital, Bari, Italia;* [v] *ASST Santi Paolo e Carlo, San Paolo University Hospital, Milan, Italia;* [vi] *Grande Ospedale Metropolitano, Department of Urology, Reggio Calabria, Italia;* [vii] *AUSL Romagna, Department of Urology, G.B. Morgagni - L. Pierantoni Hospital, Forlì, Italia;* [viii] *Azienda Ospedaliero Universitaria Consorziale Policlinico, Department of Urology, Aldo Moro University, Bari, Italia;* [ix] *Tor Vergata University, Department of Experimental Medicine and Surgery, Rome, Italia;* [x] *Azienda Ospedaliero-Universitaria Careggi, Department of Neuro-Urology, Florence, Italia;* [xi] *Casa di Cura Candela Hospital, Department of Urology, Palermo, Italia;* [xii] *University of Florence, Unit of Urological Robotic Surgery and Renal Transplantation, Careggi Hospital, Florence, Italia;* [xiii] *University of Foggia, Department of Urology and Renal Transplantation, Policlinico Riuniti di Foggia, Foggia, Italia;* [xiv] *Azienda Ospedaliera Universitaria Pisana, Department of Obstretrics and Gynecology I, Pisa, Italia*

Introduction: To assess the use relationship between clinical and urodynamics (UD) diagnosis.

Materials and methods: This was a national multicenter study on correspondence between clinical indications and UD results in Italy in the pre-Covid era 2018–19. Additional UD diagnoses were also recorded. This period has been chosen to have a real UD management scenario, because access to hospitals and UD offices has been reduced in the last 2 years due to the Covid-Sars limitations. Urological and gynecological centers were involved. Data on men and women were retrospectively collected between January and December 2022.

Results: Centers involved were 13: 11 urological, 2 gynecological. Data were collected on 2358 patients, 1329 (56.4%) women with median age 62 y.o and 1029 men (43.6%) with median age 68 y.o. The relationship between the main females indications and UD outcomes, with additional UD diagnoses, are reported in Table 1. In males, correspondences were as follows: bladder outlet obstruction (BOO) in 79.1%, urinary retention (UR) in 81.9%, iatrogenic urinary incontinence (UI) in 81%, overactive bladder syndrome (OAB) in 81.7%, voiding dysfunctions (VD) in 86.9%, concomitant BOO and OAB in 87.2%.

Table 1
Relationship between the main females indications and UD outcomes, with additional UD diagnoses.

Indications	Correspondence	SUI UD	UUI UD	MUI UD	DO UD	DUA UD	VD UD
SUI	74%	74%	2.3%	4.2%	10.3%	11.5%	10.3%
UUI	37.5%	11.7%	37.5%	5.4%	60.8%	11.7%	21.2%
MUI	19%	46.5%	26.4%	19%	49.3%	15%	15.3%
VD	53.1%	5.2%	5.2%	1%	23.7%	36.1%	53.1%
POP	–	18.6%	11.9%	3.7%	35.8%	14.9%	53.7%

UD: urodynamics; SUI: stress urinary incontinence; UUI: urgency urinary incontinence; MUI: mixed urinary incontinence; DO: detrusor overactivity; DUA: detrusor underactivity; VD: voiding dysfunction, POP: pelvic organ prolapse.

Interpretation of results: The correlation between clinical indications and UD outcomes was high in males, so outpatient evaluation was highly reliable. In females, the match rate was >50% in SUI and VD conditions only. The most misleading clinical diagnoses were those related to urgency (UUI and MUI); in the latter, UD demonstrated different diagnoses in many patients. This finding highlights the relevance of UD investigation in female UI to obtain a correct diagnosis and avoid further unnecessary treatment. Among women with SUI, approximately 10% had detrusor overactivity (DO) or voiding disorders. In patients with symptomatic POP, UD demonstrated that VD and DO were often associated, while DUA occurred only in a smaller proportion of women.

Conclusions: A high relationship between clinical indications and UD results was found in men, while in females only in case of SUI and VD. UD was still useful in helping to reach a correct diagnosis avoiding potential further unnecessary treatments.

Continence 6S1 (2023) 100668
doi: https://doi.org/10.1016/j.cont.2023.100668

71 - Onabotulinum toxin A (BTX-A) intradetrusor injections in children with neurogenic bladder dysfunction: Long-term histological effects on bladder wall

Chiara Pellegrino [i], Valentina Forlini [i], Federica Lena [i], Maria Luisa Capitanucci [i], Enrico Castelli [ii], Giovanni Mosiello [i]

[i] *Continence Surgery and NeuroUrology Unit, Children's Hospital Bambino Gesu', Rome, Italia;* [ii] *NeuroRehabilitation Unit, Children's Hospital Bambino Gesu', Rome, Italia*

Introduction and aim of the study: In the last years BTX-A has gained increasing popularity for neurogenic bladder dysfunction (NBD). To maintain its efficacy, repeated BTX-A intradetrusor injections (BTX-AI) are required over time, with unknown effects on bladder wall in children. We analyzed histological bladder modification in children treated with repeated BTX-AI.

Materials and methods: Children with NBD not responsive to I line therapy have been treated with BTX-A, according to protocol approved by our Ethical Committee (200602R001820). To evaluate edema, inflammation and fibrosis and any other histological change, protocol included bladder wall surveillance with endoscopic cold cup biopsy. Edema, inflammation and fibrosis were classified as 0: none, 1: mild, 2: moderate, 3: severe. Patients who underwent ≥ 5 BTX-AI were

Interpretation of results: The following statements reached a valid agreement on Round 3:

- Patients with complicated UI and upper urinary tract dilation need Video-urodynamics (83%)
- Patients with SUI and voiding dysfunction need to perform invasive urodynamics (85%)
- Patients with recurrent SUI need to perform invasive urodynamics (83%)

Two statements needed a round four and did not reach consensus after discussion:

- Patients with SUI and radiotherapy need to perform invasive urodynamics (60%)
- Patients with SUI and pelvic pain need to perform invasive urodynamics (55%)

Conclusions: The present consensus statement answers some unmet needs in patients with complicated UI. The lack of evidence in this setting warrants well designed clinical trials to answer these questions.

Continence 6S1 (2023) 100675
doi: https://doi.org/10.1016/j.cont.2023.100675

78 - Urodynamics predictive value of postoperative urinary retention after female stress urinary incontinence surgery

Emanuele Rubilotta [i], Matteo Balzarro [i], Vito Mancini [ii], Alessandro Antonelli [i], Marilena Gubbiotti [iii]

[i] *AOUI Verona, Dept. Urology, Verona, Italia;* [ii] *Policlinico Riuniti, Urology and Renal Transplant Unit Foggia University, Foggia, Italia;* [iii] *San Donato Hospital, Dept. Urology, Arezzo, Italia*

Introduction and aim of the study: To assess whether preoperative urodynamics (UD) may be predictive of post-operative urinary retention (POUR) after surgery for female stress urinary incontinence (SUI).

Materials and methods: A systematic review according to PRISMA rules was performed on September 2022 in PubMed, Medline, Embase. Research key-words were: POUR, post-void residual urine (PVR), urodynamics (UD), pressure-flow-study, urodynamic testing, SUI, SUI surgery, female surgery, sling, middle urethral sling (MUS), pubo-vaginal sling (PVS), Burch, mini-sling, POU/voiding complications. Original papers in English language on adult female populations were included, while reviews and meta-analysis, expert-opinions statements, case reports, pediatric were excluded. Some papers could describe results of various surgical procedures and sometimes multiple UD parameters were reported as predictive of POUR in the same paper.

Results: Among 1589 papers found, only 18 could be included in the analysis, with data on 3598 women treated with all type of SUI surgical procedures, mostly MUS (66.7%), PVS (33.3%), others (11.1%). Mean POUR rate was 14.9%. POUR definition was a PVR > 100 ml in 27.8%, PVR > 150 ml in 16.7%, PVR > 200 ml in 16.7%, no definition or simply need to catheterization in 38.9%. UD was reported as predictive of POUR in 11 papers (61.1%), while not in the remaining (38.9%). Main UD parameters predictive of POUR were: detrusor underactivity in 6 papers (33.3%), Valsalva voids in 6 (33.3%), preoperative Qmax in 4 (22.2%), Pdet 12 cmH20 in 2 (11.1%).

Interpretation of results: Our study documented that the UD predictive value of POUR is still uncertain. Limited data are available on this topic and most of them reported that UD was effective in predicting the possibility of POUR occurrence. However, in nearly 40% of papers UD failed as a predictor. The UD parameters predictive of POUR were poorly uniform, although the most represented were detrusor underactivity and Valsalva voids, both of which could be signs of voiding dysfunction. Concomitant use of several UD parameters could increase the predictive value of this preoperative investigation.

Conclusions: The UD predictive value of POUR is under researched and still debated. Most of the data showed that UD could be a potential predictor and parameters representing voiding dysfunction were the most involved.

Continence 6S1 (2023) 100676
doi: https://doi.org/10.1016/j.cont.2023.100676

79 - Italian national big data on urodynamics: How the investigation is performed

Emanuele Rubilotta [i], Francesco Ditonno [i], Matteo Balzarro [i], Marilena Gubbiotti [ii], Enrico Ammirati [iii], Stefania Chierchia [iii], Giuseppe Masiello [iv], Stefano Manodoro [v], Marianna Bevacqua [vi], Eugenia Fragalà [vii], Roberto Carone [iii], Gaetano De Rienzo [viii], Enrico Finazzi-Agrò [ix], Alessandro Giammò [iii], Luca Gemma [x], Sofia Giannone [xi], Marcello Lamartina [xi], Vincenzo Li Marzi [xii], Leonardo Martino [xiii], Stefania Musco [x], Eleonora Russo [xiv], Marco Spilotros [viii], Vito Mancini [xiii]

[i] *Azienda Ospedaliera Universitaria Integrata, Department of Urology, Verona, Italia;* [ii] *San Donato Hospital, Department of Urology, Arezzo, Italia;* [iii] *Unipolar Spinal Cord Unit, Department of Neuro-Urology, AOU Città della Salute e della Scienza, Turin, Italia;* [iv] *ASL Bari, Department of Urology, Di Venere Hospital, Bari, Italia;* [v] *ASST Santi Paolo e Carlo, San Paolo University Hospital, Milan, Italia;* [vi] *Grande Ospedale Metropolitano, Department of Urology, Reggio Calabria, Italia;* [vii] *AUSL Romagna, Department of Urology, G.B. Morgagni - L. Pierantoni Hospital, Forlì, Italia;* [viii] *Azienda Ospedaliero Universitaria Consorziale Policlinico, Department of Urology, Aldo Moro University, Bari, Italia;* [ix] *Tor Vergata University, Department of Experimental Medicine and Surgery, Rome, Italia;* [x] *Azienda Ospedaliero-Universitaria Careggi, Neuro-Urology Department, Florence, Italia;* [xi] *Casa di Cura Candela Hospital, Department of Urology, Palermo, Italia;* [xii] *Careggi Hospital, Unit of Urological Robotic Surgery and Renal Transplantation, University of Florence, Florence, Italia;* [xiii] *Policlinico Riuniti di Foggia, Department of Urology and Renal Transplantation, University of Foggia, Foggia, Italia;* [xiv] *Azienda Ospedaliera Universitaria Pisana, Department of Obstretrics and Ginecology I, Pisa, Italia*

Introduction: To assess how urodynamics (UD) is performed in most of the main Centers of Italy.

Materials and methods: This was a multicenter study evaluating which UD tests were performed in urological and gynecological centers of Italy in the pre-Covid era 2018–2019. This period has been chosen to have a real UD management scenario, because access to hospitals and UD offices has been reduced in the last 2 years due to the Covid-Sars limitations. Data on men and women were retrospectively collected between January and December 2022.

Results: Centers involved were 13: 11 urological, 2 gynecological. Data were collected on 2358 patients, 1329 (56.4%) women (median age 62 y.o),1029 men (43.6%) (median age 68 y.o.). In Table 1 are reported the main UD tests.

Table 1
UD tests performed overall and according to specif conditions on males and females.

%	Cystometry		P-F study		VLPP		UPP		UF		EMG	
	F	M	F	M	F	M	F	M	F	M	F	M
Overall	79.9	79.0	80.9	91.5	52.6	12.4	46.4	17.5	88.4	65.8	12.6	11.1
SUI n 261	89.7	–	60.2	–	63.6	–	62.8	–	95.8	–	9.6	–
UUI n 240	81.3	–	85.0	–	51.3	–	39.2	–	85.0	–	7.5	–
MUI n 274	84.7	–	77.4	–	60.2	–	46.4	–	88.3	–	6.6	–
POP n 134	81.3	–	93.3	–	66.4	–	38.8	–	95.5	–	9.7	–
Iatrogenic UI n 106	–	61.3	–	97.2	–	30.2	–	41.5	–	75.5	–	3.8
BOO n 307	–	88.6	–	95.1	–	7.2	–	7.8	–	67.4	–	9.5
OAB n 168	–	60.7	–	96.4	–	1.8	–	19.6	–	79.2	–	7.7
UR M n 140 UR F n 68	82.4	93.6	97.1	75.0	47.1	7.1	23.5	8.6	80.9	41.4	30.9	3.6
NB M n 109 NB F n 46	84.8	87.2	82.6	89.9	43.5	11.0	23.9	12.8	73.9	59.6	69.6	42.2

P-F: pressure-flow; VLPP: Valsalva Leak Point Pressure; UPP: Urethral Pressure Profile; UF: uroflowmetry; EMG: electromiìography; SUI: stress urinary incontinence; UUI: urgency urinary incontinence; MUI: mixed urinary incontinence; POP: pelvic organ prolapse; BOO: bladder outlet obstruction; OAB: overactive bladder syndrome; UR: urinary retention; NB: neurogenic bladder.

Interpretation of results: Overall, in both sexes only about 80% of UD included both cystometry and Pressure-Flow study (P-F S). This was surprising because both of these studies should always be performed to obtain a functional assessment. As expected, urethral functional test (UFT) were mainly used in women. Interestingly, the use of two UFTs in female stress urinary incontinence (SUI) has been reported at the same rates (63%). Therefore, VLPP and UPP were both performed in these patients and neither was preferred. Noteworthy, no UFT was performed in approximately 40% of these patients. A striking finding was the higher overall rate of UF in females than men, although voiding LUTS/ BOO was a more common indication to UD in males. In women with symptomatic pelvic organ prolapse (POP) and in males with BOO, P-F S was the main UD test, likely because voiding obstruction was the most researched finding. Surprisingly, even in OAB males, the most commonly used UD exam was P-FS and was performed more commonly than cystometry, although in these cases, in addition to BOO, detrusor overactivity should also be investigated by cystometry. EMG has been widely used in cases of neurogenic bladder in both sexes, and also in women with urinary retention probably because this test can help in the diagnosis of dysfunctional voiding and dyssynergia.

Conclusions: This study showed that not all UD investigations included both cystometry and P-F S as would be recommended. UFTs were both performed in women with SUI with same rates. In females with symptomatic POP and in men with BOO, P-F S was the preferred test as voiding obstruction research tool. EMG was mainly used in conditions with potential underlying dysfunctional voiding.

Continence 6S1 (2023) 100677
doi: https://doi.org/10.1016/j.cont.2023.100677

80 - Italian national big data on urodynamics: Do we use nomograms?

Emanuele Rubilotta [i], Francesco Ditonno [i], Matteo Balzarro [i], Marilena Gubbiotti [ii], Enrico Ammirati [iii], Stefania Chierchia [iii], Giuseppe Masiello [iv], Stefano Manodoro [v], Marianna Bevacqua [vi], Eugenia Fragalà [vii], Roberto Carone [iii], Gaetano De Rienzo [viii], Enrico Finazzi Agrò [ix], Alessandro Giammò [iii], Luca Gemma [x], Sofia Giannone [xi], Marcello Lamartina [xi], Vincenzo Li Marzi [xii], Leonardo Martino [xiii], Stefania Musco [x], Eleonora Russo [xiv], Marco Spilotros [viii], Vito Mancini [xiii]

[i] *Azienda Ospedaliera Universitaria Integrata, Department of Urology, University of Verona, Verona, Italia;* [ii] *San Donato Hospital, Department of Urology, Arezzo, Italia;* [iii] *Unipolar Spinal Cord Unit, Department of Neuro-Urology, AOU Città della Salute e della Scienza, Torino, Italia;* [iv] *ASL Bari, Department of Urology, Di Venere Hospital, Bari, Italia;* [v] *ASST Santi Paolo e Carlo, San Paolo University Hospital, Milano, Italia;* [vi] *Department of Urology, Grande Ospedale Metropolitano, Reggio Calabria, Italia;* [vii] *AUSL Romagna, Department of Urology, G.B. Morgagni - L. Pierantoni Hospital, Forlì, Italia;* [viii] *Azienda Ospedaliero Universitaria Consorziale Policlinico, Department of Urology, Aldo Moro University, Bari, Italia;* [ix] *Department of Experimental Medicine and Surgery, Tor Vergata University, Rome, Italia;* [x] *Neuro-Urology Department, Azienda Ospedaliero-Universitaria Careggi, Florence, Italia;* [xi] *Department of Urology, Casa di Cura Candela Hospital, Palermo, Italia;* [xii] *Unit of Urological Robotic Surgery and Renal Transplantation, Careggi Hospital, University of Florence, Florence, Italia;* [xiii] *Department of Urology and Renal Transplantation, Policlinico Riuniti di Foggia, University of Foggia, Foggia, Italia;* [xiv] *Department of Obstretrics and Ginecology I, Azienda Ospedaliera Universitaria Pisana, Pisa, Italia*

Introduction: To assess the use of nomograms for the analysis of urodynamics (UD) results in Italy.

Materials and methods: This was a national multicenter study on the use of nomograms in UD in the pre-Covid era 2018–19. This period has been chosen to have a real UD management scenario, because access to hospitals and UD offices has been reduced in the last 2 years due to the Covid-Sars limits. In some cases, multiple nomograms were used for the assessment of the same condition in the same patient. Urological and gynecological centers were involved. Data on men and women were retrospectively collected (Jan–Dec 2022).

Results: Centers involved were 13: 11 urological, 2 gynecological. Data were collected on 2358 patients, 1329 (56.4%) women with median age 62 y.o and 1029 men (43.6%) with median age 68 y.o. In females, nomograms were used as follows: detrusor underactivity (DUA) in 47.2%, bladder outlet obstruction (BOO) in 63.8%, uroflowmetry (UF) in 45.8%. In males, nomograms evaluation was reported as follows: DUA in 59.6%, BOO in 84.2%, UF in 66.5%. The main nomograms used are reported in Table 1.

Table 1
Main nomograms used in females and males.

Nomograms	Females %	Males %
SCHAEFER BOO	–	55.1
SCHAEFER DUA	11.6	55.1
ABRAMS–GRIFFITHS	–	20.9
BOOI	–	69.4
BCI	0.15	42.4
PIP-1	46.1	–
BVE	49.5	–
JEONG	42.6	–
ARBABANEL	42.6	–
BLAIVAS–GROUTZ	34.5	–
ABRAMS	3.5	–
ICS FEMALE BOO	6.4	–
GREENWALL SOLOMON	1.5	–
SIROKY–KRANE	43.6	34.5
LIVERPOOL	51	36.6

BOO: bladder outlet obstruction; DUA: detrusor underactivity; BOOI: Bladder Outlet Obstruction index; BCI: bladder Contractility Index.

Interpretation of results: Nomograms were largely used in both sexes, with higher rates in males. Most of the nomograms were developed on men and, so, can be used only in males. This issue may explain the higher prevalence of nomogram assessment in men than in women. The lack of worldwide accepted and standardized nomograms for female DUA could be the reason for the incorrect use of some male DUA nomograms (Schaefer's contractility and BCI) for females. UF tracing were analyzed with nomograms more frequently in males than in females. In the latter, the Siroky–Krane nomogram, which was developed on men, was used in many cases. Blaivas–Groutz nomograms was still the most used in the female BOO assessment, while Solomon–Greenwell was poorly used, although it was reported to have the same sensibility of Blaivas–Groutz, with a very higher specificity. In males, BOO was mainly analyzed with BOOI nomograms, the newer ICS tool than Schaefer's nomograms. However, the latter was still used in more than half of the cases for both the assessment of BOO and detrusor contractility. Surprisingly, BCI was poorly used in men, less than in half of the cases.

Conclusions: Nomograms have been used extensively in both genders, showing that they are tools considered to aid in the assessment of UD. In females, careful use should avoid inappropriate UD analyzes with male-developed nomograms.

Continence 6S1 (2023) 100678
doi: https://doi.org/10.1016/j.cont.2023.100678

81 - Italian national big data on urodynamics: Epidemiology and indications

Emanuele Rubilotta [i], Francesco Ditonno [i], Matteo Balzarro [i], Marilena Gubbiotti [ii], Enrico Ammirati [iii], Stefania Chierchia [iii], Giuseppe Masiello [iv], Stefano Manodoro [v], Marianna Bevacqua [vi], Eugenia Fragalà [vii], Roberto Carone [iii], Gaetano De Rienzo [viii], Enrico Finazzi Agrò [ix], Alessandro Giammò [iii], Luca Gemma [x], Sofia Giannone [xi], Marcello Lamartina [xi], Vincenzo Li Marzi [xii], Leonardo Martino [xiii], Stefania Musco [x], Eleonora Russo [xiv], Marco Spilotros [xv], Vito Mancini [xiii]

[i] *Azienda Ospedaliera Universitaria Integrata, Department of Urology, University of Verona, Verona, Italia;* [ii] *San Donato Hospital, Department of Urology, Arezzo, Italia;* [iii] *Unipolar Spinal Cord Unit, Department of Neuro-Urology, AOU Città della Salute e della Scienza, Turin, Italia;* [iv] *ASL Bari, Department of Urology, Di Venere Hospital, Bari, Italia;* [v] *ASST Santi Paolo e Carlo, San Paolo University Hospital, Milan, Italia;* [vi] *Grande Ospedale Metropolitano, Department of Urology, Reggio Calabria, Italia;* [vii] *AUSL Romagna, Department of Urology, G.B. Morgagni - L. Pierantoni Hospital, Forlì, Italia;* [viii] *Azienda Ospedaliero Universitaria Consorziale Policlinico, Department of Urology, Aldo Moro University, Bari, Italia;* [ix] *Department of Experimental Medicine and Surgery, Tor Vergata University, Rome, Italia;* [x] *Neuro-Urology Department, Azienda Ospedaliero-Universitaria Careggi, Florence, Italia;* [xi] *Department of Urology, Casa di Cura Candela Hospital, Palermo, Italia;* [xii] *Unit of Urological Robotic Surgery and Renal Transplantation, Careggi Hospital, University of Florence, Florence, Italia;* [xiii] *Department of Urology and Renal Transplantation, Policlinico Riuniti di Foggia, University of Foggia, Foggia, Italia;* [xiv] *Department of Obstetrics and Gynecology I, Azienda Ospedaliera Universitaria Pisana, Pisa, Italia;* [xv] *Azienda Ospedaliera Universitaria Consorziale Policlinico, Department of Urology, Aldo Moro University, Bari, Italia*

Introduction: To assess epidemiological data and indications to urodynamics (UD) in most of the main Centers of Italy.

Materials and methods: This was a national multicenter study collecting the epidemiological data and indications to UD in Italy in the pre-Covid era 2018–2019. This period has been chosen to have a real UD management scenario, because access to hospitals and UD offices has been reduced in the last 2 years due to the Covid–Sars limitations. Urological and gynecological centers were involved. Data on men and women were retrospectively collected between January and December 2022.

Results: Centers involved were 13:11 urological and 2 gynecological. Data were collected on 2358 patients, 1329 (56.4%) women with median age 62 y.o and 1029 men (43.6%) with median age 68 y.o. In 13.7% of the women multiple indications (up to 78 different combined indications) to UD were recorded, while in men in 12% (up to 31 different combined indications). In females, main indications to UD were mixed urinary incontinence (MUI) 19.8%, stress UI (SUI) 18.9%, urgency UI (UUI) 17.4%, symptomatic pelvic organ prolapse (POP) 9,7%, voiding dysfunction (VD) 7%. Overactive bladder syndrome (OAB) was an indication to UD in only 1.4%, neurogenic bladder (NB) in 3.3%, urinary retention (UR) in 4.9%. In males, leading indications to UD were voiding LUTS/bladder outlet obstruction 30.1%, OAB 16.5%, UR 13.7%, NB 10.9%, iatrogenic UI 10.4%, post-operative complications 4.4%.

Interpretation of results: As expected, women were the majority of patients undergoing UD; however, a large part of UD was reserved for men (over 40%). Thus, UD can still be considered an investigative tool for both genders.
In most cases, only one leading indication was reported, demonstrating that a response from UD to a major issue was usually required. In females, UI was the main cause of UD choice (overall 56.1%); UD was poorly used to investigate voiding disorders such VD, UR (overall 11.9%) and symptomatic POP, while OAB was almost lacking. In males, voiding dysfunctions such presumed BOO and UR represented the main indication to UD (overall 43.8%), as expected. However, a not negligible rate of UD were reserved to men affected by OAB, and interestingly this latter part (16.5%) was greater than the percentage reported in women (1.4%). In males, also NB issues were investigated more often with UD than in women (10.9% vs 3.3%). Post-operative disorders were often investigated in men (overall 14.8%).

Conclusions: Urodynamics was performed in both sexes with high rates, but mainly in females. Major indications were UI in women and voiding disorders in men.

Continence 6S1 (2023) 100679
doi: https://doi.org/10.1016/j.cont.2023.100679

82 - A randomized controlled trial on the efficacy of binaural beats in reducing anxiety and pain levels in patients undergoing conventional urodynamic study. Preliminary data and perspectives

Francesca Vedovo [i], Jacopo Leonardo Martini [i], Carmelo Morreale [i], Matteo Balzarro [ii], Emanuele Rubilotta [ii], Matteo Marini [ii], Paolo Capogrosso [iii], Lisa Di Blas [iv], Carlo Trombetta [i]

[i] *Azienda Sanitaria Universitaria Giuliano Isontina, Universita' Di Trieste, Trieste, Italia;* [ii] *Azienda Ospedaliera Universitaria Integrata Di Verona, Universita' Di Verona, Verona, Italia;* [iii] *Ospedale Di Circolo And Macchi Foundation, Diparimento Di Urologia E Andrologia, Varese, Italia;* [iv] *Universita' Di Trieste, Department of Life Sciences, Trieste, Italia*

Introduction and aim of the study: To investigate the effects of binaural beats (BB) on anxiety and pain scores in patients undergoing conventional urodynamic study (UDS).

Materials and methods: Multi-center, prospective, single-blinded, randomized controlled trial. Exclusion criteria: wear a hearing aid, history of epilepsy, psychiatric disorder or chronic pelvic pain, the use of antidepressants, anxiolytic and/or analgesic drugs, history of previous UDS. Eligible patients scheduled to undergo UDS were randomly allocated in three groups: Classic Music (CM) who listened by headphones to Samuel Barber's *Adagio for Strings,* Binaural Music (BM) who listened by headphones *Adagio for Strings* embedded with a BB frequency of 6 Hz and No Music group (NM) who did not listen to music during UDS. *State-Trait Anxiety Inventory* form Y (STAI-Y) and *Visual Analog Scale* (VAS) were used for measuring anxiety and pain scores, respectively. Blood pressure and heart rates were measured for pain and anxiety-related physiological outcomes before and after the UDS. The main outcome was to assess differences between groups in post-procedure improvement of the state STAI-Y (Y1) score from baseline and in VAS scores. Kruskal–Wallis rank test and Pearson's chi-square were used to compare differences in continuous and categorical factors between groups. Differences in pre- vs. post-UDS psychometric scores were analyzed with paired t-test. Statistical analysis were performed using STATA 14.0 (StataCorp, College Station, TX, USA), with a two-sided significance level set at $p < 0.05$.

Results: A total of 90 patients were enrolled until January 2023. Demographics, comorbidities, baseline STAI-Y levels and procedure time were comparable between groups (Table 1). Post UDS STAI-Y1 levels decreased significantly in NM and CM groups ($p = 0.0002$, $p = 0.0001$ respectively). No statistically significant differences were detected between groups for VAS score.

Interpretation of results: According to these preliminary data, binaural beat does not seem to reduce anxiety and pain levels in patients undergoing UDS. In contrast with previous studies published on this topic, classic music seems to reduce anxiety in patients performing UDS.

Conclusions: Classic music could be a non-harmful, non-pharmacological and inexpensive tool to alleviate anxiety in patients undergoing UDS. Further data are needed to understand the effects of binaural beats on anxiety and pain due to UDS (see Table 1).

Table 1
IC = Indwelling catheter; ISC = intermittent self catheterization; SUI = stress urinary incontinence; UUI = urge urinary incontinence, MUI = mixed urinary incontinence. $p < 0.05$.

	Binaural music (N = 35; 39%)	Classic music (N = 25; 28%)	No music (N = 30; 33%)	
AGE Median (IQR)	67.0 (56.0, 70.0)	67.0 (52.0, 74.0)	63.5 (54.0, 72.0)	0.9
BMI Median (IQR)	26.0 (23.0, 32.0)	25.0 (23.0, 26.0)	24.0 (23.0, 27.0)	0.2
GENDER Male	18 (51%)	14 (56%)	13 (43%)	0.6
Procedure time Median (IQR)	35.0 (24.0, 50.0)	40.0 (30.0, 50.0)	38.5 (23.0, 60.0)	0.6
STAY tot baseline	80.0 (70.0, 96.0)	78.0 (71.0, 92.0)	87.5 (72.0, 101.0)	0.3
STAY Y1 baseline	43.0 (38.0, 51.0)	42.0 (33.0, 47.0)	45.0 (35.0, 54.0)	0.5
STAY Y2 baseline	37.0 (31.0, 44.0)	36.0 (31.0, 44.0)	41.5 (35.0, 46.0)	0.12
VAS Median (IQR)	0.0 (0.0, 2.0)	0.0 (0.0, 2.0)	0.0 (0.0, 2.0)	1
Delta (STAY Y1 post - baseline)	−6.0 (−13.0, −1.0)	−3.0 (−9.0, 0.0)	−5.0 (−11.0, −1.0)	0.4
STAY Y1 post	36.0 (31.0, 48.0)	38.0 (31.0, 47.0)	37.5 (34.0, 44.0)	0.7
Neurological disease				
Multiple Sclerosis	7 (20%)	1 (4.0%)	6 (20%)	0.2
IC/ISC	7 (20%)	3 (12%)	5 (17%)	0.7
Incontinence (overall)	9 (26%)	7 (28%)	4 (13%)	0.4
SUI	1	3	1	0.3
UUI	7	2	2	0.3
MUI	1	2	1	0.7

Continence 6S1 (2023) 100680
doi: https://doi.org/10.1016/j.cont.2023.100680