Original Article

Pelvic Floor Dysfunction Management Practice Patterns: A Survey of Members of the International Urogynecological Association

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Abstract: The authors report results of a survey of the practice patterns of International Urogynecological Association (IUGA) members in the management of urinary incontinence and pelvic organ prolapse. A questionnaire regarding current urogynecological clinical practice was developed by the Research and Development Committee of IUGA and mailed to all members of IUGA. Age, specialty, and geographic location factors were used for response comparisons. One hundred and fifty-two surveys (30%) were returned, 35% from North America, 51% from Europe/Australia/New Zealand, and 14% from elsewhere. The average age of respondents was 47.2 years (SD = 9.5), 89% were gynecologists and 11% were urologists. Overall, the procedures of choice for stress incontinence (SUI) were tension-free vaginal tape (TVT; 48.8%) and Burch colposuspension (44%). There were significant geographic variations noted. For SUI with low-pressure urethra/intrinsic sphincteric deficiency, TVT was used by 44.6% and suburethral sling by 32.3%. Various materials are used for suburethral slings, including autologous fascia (46.5%), Marlex mesh (27.8%) and cadaveric fascia lata (11.6%). Bulking agent injection therapy is used for ISD by 75% of respondents. Traditional reconstructive procedures are performed by the majority of respondents, including sacrospinous fixation (78%), abdominal sacrocolpopexy (77%), paravaginal repair (65%) and vaginal enterocele repair (93%); 6.5% use defecography in evaluating rectoceles and 44% use the POP-Q. Seventy-two per cent use urodynamic evaluation routinely in prolapse cases with no manifest SUI. Most IUGA members perform commonly accepted procedures for surgical therapy of urinary incontinence and genital prolapse. IUGA members do not frequently use anorectal physiology and fluoroscopic investigations to evaluate rectoceles prior to repair.

Keywords: Genital prolapse; Slings; Urinary incontinence; Urogynecology

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Introduction

The International Urogynecological Association (IUGA) focuses on fostering research and dissemination of knowledge regarding the care of women with pelvic floor dysfunction, including urinary incontinence and genital prolapse. The international nature of its membership, with specific geographic, healthcare accessibility, cultural and financial variables, places IUGA in a unique position to describe the current state of urogynecologic clinical practice worldwide. The aim of this study was to survey the practice patterns of IUGA members in the management of urinary incontinence and pelvic organ prolapse. This was not an attempt to identify gold standard therapy, but merely to assess current clinical practices.

Methods

A questionnaire was developed by the Research and Education Development Committee of IUGA. The committee includes IUGA members from the USA, Argentina, Germany, Mexico, Taiwan, Australia and the United Kingdom. All provided input on wording and response choices.

The final 52-item questionnaire covered multiple aspects of urinary incontinence and genital prolapse surgery and evaluation tools. Questionnaires were included in the annual dues and informational mailing to all members ($n = 500$). A self-addressed return envelope was included. The questionnaire was worded in English, because this is the official language of IUGA and its journal, the *International Urogynecology Journal and Pelvic Floor Dysfunction*.

A great deal of consideration was given to the methods used for data analysis. The committee members decided to analyze data according to respondents' age ($</>45$ years), specialty (urologist vs. gynecologist), and continent or place of practice (North America vs. Europe, Australia and New Zealand vs. the rest of the world). Australia and New Zealand were grouped with Europe because of similarities in healthcare delivery systems and commonalities in postgraduate training.

Respondents were allowed to choose more than one answer for many questions. When multiple responses were given for one question, they were weighted such that the sum of answers to that question equalled one. For instance, if a responder chose three items for a question, each of the three answers was given a weight of 1/3.

Categorical variables were split by age, specialty and continent, and tested for association using likelihood ratio χ^2 tests. Continuous variables were tested using Wilcoxon's rank sum tests.

This survey was not funded by any industry source. Mailing costs were covered by IUGA and respondents were responsible for return postage.

Results

One hundred and fifty-two surveys (30%) were received within 8 weeks. No attempts were made to contact non-responders. The average age of respondents was 47.2 years (range 30–71, SD = 9.5). Responses were received from 32 countries: 51% from Europe/Australia/New Zealand, 35% from North America (44 Americans, 7 Canadians and 1 Mexican), and 14% from elsewhere in the world. For four respondents location was not known.

There was no difference in age by continent. Males comprised 81% of respondents, and females comprised 19%. Female respondents tended to be younger (mean age 41.7) than their male counterparts (mean age 48.5), though this difference was not statistically significant ($P = 0.057$). There was no difference in gender distribution by continent. Fifty-two per cent of respondents were fellowship trained. More women (71%) were fellowship trained than men (48%; $P = 0.02$). Regardless of gender, fellowship-trained respondents were younger ($P = 0.01$). Fifty-seven per cent of the respondents listed urogynecology as their specialty, 32% listed obstetrics and gynecology, and 11% listed urology.

Stress Urinary Incontinence (SUI) Management

The questions regarding SUI surgery included commonly analyzed variables: primary vs. repeat procedure, normal urethral sphincteric function vs. low-pressure urethra (LPU)/intrinsic sphincteric deficiency (ISD), and choice of operation. There were no significant differences between any of the groups regarding surgical choice for SUI with normal urethral sphincteric function (Table 1). However, in all cases Burch colposuspension and tension-free vaginal tape (TVT) sling procedures were selected most frequently.

In selection of procedure for SUI with poor sphincteric function there were no statistically significant differences between specialties regarding of choice procedure (Table 2), although significant geographic differences were noted. The suburethral sling procedure was chosen most commonly by North Americans (51.0%) compared to TVT by Europeans (52.0%), and an equal division between suburethral sling (47.6%) and TVT (47.6%) among those from the rest of the world ($P = 0.0004$). As a secondary procedure, suburethral sling was chosen most commonly by North Americans (41.6%) and the rest of the world (50.0%) whereas bulking agent injection therapy was preferred in Europe (35.7%; $P = 0.037$).

Specific questions were asked about the management of LPU. Geographic differences were found as most North Americans (98.0%) and the rest of the world (100%) would perform suburethral sling, and only

Table 1. Surgical techniques for primary and secondary treatment of stress urinary incontinence with normal-pressure urethra (%)

	Burch	Suburethral sling	Needle suspension	TVT	Kelly plication	Injection therapy	Other
Primary procedure							
Overall	44.52	3.8	0.22	48.88	1.57	0	1.01
Urologist	46.88	18.75	0	34.38	0	0	0
Gynecologist	44.24	2.01	0.25	50.63	1.75	0	1.13
Secondary procedure							
Overall	41.50	24.37	0.68	31.22	0.68	0.86	0.68
Urologist	27.08	52.08	0	20.83	0	0	0
Gynecologist	43.27	20.96	0.77	32.50	0.77	0.96	0.77

For all differences between specialty, $P > 0.05$.

Table 2. Surgical techniques for primary and secondary treatment of stress urinary incontinence with low-pressure urethra/ISD and hypermobility (%)

	Burch	Suburethral sling	TVT	Injection therapy	Other
Primary procedure					
Overall	18.36	31.87	44.71	3.72	1.35
Urologist	14.58	58.33	17.71	9.38	0
Gynecologist	18.81	28.66	47.98	3.03	1.52
Secondary procedure					
Overall	12.64	31.26	26.09	30.00	0
Urologist	6.25	31.25	25.00	37.50	0
Gynecologist	13.44	31.27	26.23	29.07	0

For all differences between specialty, $P > 0.05$.

73.1% of Europeans would do so ($P < 0.0001$). Whereas many Europeans (60.0%) would perform a colposuspension in this clinical situation, most North Americans (80.4%) and the rest of the world (85.0%) would not ($P < 0.0001$). There were significant differences among specialties as well. More urologists (81.3%) than gynecologists (56.1%) would not perform a colposuspension for LPU ($P = 0.043$).

When asked about concomitant surgery for pelvic organ prolapse and SUI, TVT was preferred by 62.4% of Europeans, 70.0% of the rest of the world, but only 38.9% of North Americans ($P = 0.008$).

Operative Techniques for SUI

Questions were asked about utilization of currently accepted surgical techniques for the management of SUI. Choices included type of surgical technique as well as materials for suburethral slings and bulking agents. Table 3 shows responses and significant differences.

Regarding postoperative bladder drainage, 93.8% of urologists prefer transurethral drainage, whereas 53.5% of gynecologists use suprapubic catheterization ($P < 0.0001$).

Table 3. Reported surgical experience – IUGA members (%)

	Overall	Age		Geographic region of practice		
		<45	>45	North America	Europe/Aust/New Zealand	Rest of world
Burch	97.28	98.63	95.95	100	97.33	90.48
Method:						
Laparoscopic*	26.53	34.25	18.92	33.33	22.67	23.81
Vaginal	9.52	8.22	10.81	9.80	9.33	9.52
Suburethral sling[§]	80.82	84.72	77.03	94.23	68.49	95.24
Material[§]						
Autologous fascia	39.57	40.65	38.39	33.33	49.67	27.50
Cadaveric fascia	11.63	10.84	12.50	26.46	1.67	0
Tutoplast	5.67	5.15	6.25	7.56	2.00	5.00
Marlex	27.80	28.73	26.79	23.37	29.67	42.50
Gore-tex	2.55	0	5.36	3.09	3.00	0
Porcine graft	4.54	5.42	3.57	0.69	4.00	15.00
Dermal graft	4.40	5.15	3.57	4.47	2.00	10.00
Other	3.83	4.07	3.57	1.03	8.00	0
TVT	82.99	87.67	78.38	73.08	88.00	90.00
Bulking agents[†]	75.68	84.93	66.67	73.08	78.67	61.90
Material[§]						
Collagen	47.30	46.72	48.00	72.37	32.76	46.15
Macroplastique	38.74	40.16	37.00	6.58	58.62	42.31
Fat	3.15	4.10	2.00	1.32	2.59	11.54
Durasphere	7.66	7.38	8.00	19.74	0	0
Teflon	0.45	0	1.00	0	0.86	0
Other	2.70	1.64	4.00	0	5.17	0
Kelly plication[‡]	22.97	17.81	28.00	15.38	32.00	14.29

*Difference between age groups at $P < 0.05$.
[†]Difference between age groups at $P < 0.01$.
[‡]Difference between regions of practice at $P < 0.05$.
[§]Difference between regions of practice at $P < 0.01$.

Table 4. Reported prolapse surgery experience – IUGA members (%)

	Overall	Age		Geographic region of practice		
		< 45	> 45	North America	Europe/Aust/New Zealand	Rest of world
Sacrospinous fixation[†]	78.08	75.00	81.08	76.47	86.49	57.14
Method:						
Unilateral	84.05	90.74	78.23	75.61	88.28	91.67
Bilateral	15.95	9.26	21.77	24.39	11.72	8.33
Suture type[†]						
Prolene	26.44	29.63	23.66	28.05	22.92	45.83
Gore-Tex	13.65	9.26	17.47	25.61	6.77	8.33
Vicryl	9.77	12.04	7.80	6.10	8.33	29.17
PDS	33.33	35.19	31.72	24.39	43.23	16.67
Other	16.81	13.89	19.35	15.85	18.75	0
Abdominal sacrocolpopexy[*]	77.24	84.72	69.86	84.31	75.68	70.00
Grafts for cystocele repair[†]	36.99	40.28	33.78	52.94	29.73	28.57
Paravaginal defect repair						
Method:						
Abdominal[‡]	65.07	63.89	66.22	88.24	56.76	38.10
Vaginal[†]	36.30	38.89	33.78	47.06	25.68	47.62
Abdominal enterocele repair[†]	72.60	79.17	66.22	86.27	66.22	61.90
Method:						
Halbans operation	20.16	20.18	20.14	31.44	12.85	12.82
Moschowitz procedure	27.94	23.39	33.33	21.97	32.29	32.05
Uterosacral plication	36.98	44.44	28.13	32.20	38.54	47.44
Site-specific repair	14.92	11.99	18.40	14.39	16.32	7.69
Vaginal enterocele repair	92.57	93.15	92.00	94.23	94.67	80.95
Method[†]:						
McCall	38.97	41.05	37.23	43.26	29.60	65.63
Vaginal Moschowitz	9.36	9.68	7.39	11.35	10.20	0
Obliteration of the cul-de-sac	28.21	28.55	28.36	17.73	36.32	25.00
Site-specific repair	23.46	20.71	27.02	27.66	23.88	9.38
Rectocele repair						
Method[‡]:						
Fascial plication	35.80	34.15	37.39	20.59	43.69	42.50
Levator plication	26.38	24.53	28.15	13.40	34.01	30.00
Site-specific repair	26.61	28.76	24.55	48.69	14.86	19.17
Graft reinforcement	11.21	12.56	9.91	17.32	7.43	8.33

[*]Difference between age groups at $P < 0.05$.
[†]Difference between regions of practice at $P < 0.05$.
[‡]Difference between regions of practice at $P < 0.01$.

Surgical Management of Pelvic Organ Prolapse

Questions regarding surgical technique and suture material for vaginal and uterine prolapse were included. Although some age differences were noted, more significant geographic practice differences were noted, especially those related to use of grafts for cystocele repair and suture types for sacrospinous fixation (Table 4).

SUI and Future Childbearing

A majority (58.9%) of respondents would advise surgery for SUI even if the patient were desirous of further childbearing. Colposuspension (43%) and TVT (37.4%) emerged as the most popular procedures in this scenario. A majority (90.2%) of respondents would elect to deliver a pregnancy by Cesarean section after anti-incontinence surgery.

Discussion

The purpose of this survey was to provide a summary of how IUGA members address commonly occurring urogynecologic problems. Based on recent IUGA scientific meeting presentations as well as recently published literature, the responses are not surprising. Our response rate is comparable to other reports in the literature of self-completed mailed surveys [1,2].

Our results are probably representative of the IUGA membership. Although a low (30%) response rate was obtained, the sample had a geographic distribution very similar to IUGA's membership, which is 31.1% North America, 54.1% Europe/Australia/New Zealand, and 14.8% rest of the world.

We realize this study has several inherent weaknesses. By its own nature, a voluntary survey has limited scientific validity. The reliability of each responder's answers could not be verified. Whether understanding of the English language contributed to the low response rate is also unknown. The committee acknowledges these factors, but feels there is value to practicing clinicians in sharing the information presented here.

Most IUGA members routinely perform Burch colposuspension or suburethral slings as primary therapy for patients with SUI. Colposuspension has been shown to be an effective procedure for recurrent SUI by various authors [3–5]. Burch colposuspension has a reported 10-year success rate of 67%–90% [6–8]. In a randomized study comparing procedures for SUI, Burch colposuspension had better objective results than needle suspensions or the Kelly plication [9].

Some studies have shown colposuspension and suburethral sling to be equally effective on long-term follow-up for the treatment of recurrent SUI [10]. Slings have demonstrated high success rates for primary and recurrent SUI [11,12]. A literature survey on behalf of the American Urological Association concluded that retropubic suspensions and sling procedures were the most effective treatment for SUI [13]. A recent survey of American Urological Association members found the pubovaginal sling to be the most commonly recommended treatment for type 2 (68%) and type 3 (94%) SUI [1].

Although TVT is a relative newcomer in the realm of anti-incontinence procedures, it was interesting to find that many IUGA members consider it a procedure of choice for primary management of SUI or when concomitant reconstructive surgery is performed. There is one study reporting on 5-year outcome data with the TVT procedure [14]. Preliminary results of a randomized study comparing TVT to Burch colposuspension showed comparable short-term effectiveness [15]. Minimal data are available evaluating the role of TVT in cases of ISD [16], or when concomitant uterovaginal prolapse repair procedures are performed.

The management of a patient with LPU in association with urethral hypermobility is controversial. Traditionally, a sling procedure was indicated for these patients [17]. Burch colposuspension has been evaluated and found to be as successful as the suburethral sling [18,19], yet a majority of responders did not use this procedure for this indication and preferred the TVT procedure. TVT has not been proven for this specific indication in controlled studies. It is debatable whether TVT is a type of suburethral sling. For the purposes of this questionnaire, we classified it as a separate entity. The questionnaire did not attempt to collect data regarding the respondents' views on evaluation of urethral sphincteric function, or whether they classified ISD as a separate diagnostic identity.

The literature is weak regarding laparoscopic and vaginal colposuspension. A recent meta-analysis found the results of laparoscopic colposuspension to be inferior to the open Burch procedure [20]. Both of these techniques have yet to be standardized, and longer-term follow-up studies are awaited. IUGA members appear to agree.

Bulking agents are commonly used for ISD. Periurethral and transurethral collagen has been shown to cure or improve SUI in 70% of patients in a 4-year follow-up [21,22]. Macroplastique has reported success rates in excess of 75% [23]. Geographic differences in bulking agent use may be greatly influenced by local governmental regulatory agencies and regional availability.

Suburethral slings appear to be less preferred in Europe, Australia and New Zealand than in North America and the rest of the world. Numerous new synthetic and animal source materials are available for sling procedures. IUGA members are apparently conservative in embracing these new materials, as autologous fascia remains the preferred material for slings. The use of cadaveric fascia lata for slings remains confined to North America. This difference is perhaps due to availability and cultural attitudes.

There is a paucity of peer-reviewed literature on abdominally performed paravaginal defect repair, although the technique has a plausible anatomic basis. IUGA members appear to be aware of published data showing a higher success rate for the abdominal approach than for the vaginal approach [24,25].

Colorectal surgeons routinely perform functional and dynamic assessment of rectoceles [26–29]. Only 6.5% of IUGA members use defecography to evaluate rectoceles. The reason for this difference remains unclear. Primary indications for surgical repair vary between these specialties. As such, many colorectal surgeons may consider symptomatic obstructed defecation as their primary indication, whereas posterior vaginal wall prolapse and enlarged genital hiatus are considered acceptable indications by urogynecologists. Levator plication has recently been implicated as the cause of postoperative dyspareunia after rectocele repair [30]. However, the literature on this issue is not conclusive. It appears that levator plication is routinely performed in Europe and less frequently in North America by IUGA members. Newer innovations, such as discrete site-specific repair and graft reinforcement of rectocele repairs, appear to be more widely used in North America [31–33].

The treatment of vaginal vault prolapse is less controversial. Most IUGA respondents appear to be comfortable with two primary approaches: sacrospinous fixation and abdominal sacrocolpopexy.

Occult SUI has been reported in 15%–25% of patients with exteriorized uterovaginal prolapse [34,35]. It has therefore been suggested that urodynamic evaluation with the prolapse reduced be considered routine in preoperative assessment of these patients. IUGA members appear to agree with this recommendation.

The issue of further childbearing is likely to become more important as more women of reproductive age come forward to seek surgical treatment for SUI. A survey of American Urogynecological Society members concerning practices in the treatment of SUI when

further childbearing was desired by the patient has been reported [36]. Two-thirds of those surveyed would operate on patients who expressly stated a desire for future childbearing. There are anecdotal case reports about obstetric management after anti-incontinence surgery [37,38]. A majority of lUGA members would treat SUI surgically in a patient desirous of further childbearing, and recommend Cesarean section for future deliveries.

Conclusion

This survey provides useful information regarding the practice patterns of IUGA members around the globe. We were pleased to find that IUGA members, based on this sample, appear to be following evidence-based practice principles. Assuming that IUGA members disseminate knowledge and share expertise in their native countries, we can expect the quality of care provided to women with urogynecologic problems to be continuously improving.

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EDITORIAL COMMENT: Surveys are a common method of gathering information from practicing physicians. The authors have surveyed 152 members of an international organization to determine practice patterns. This type of data, although interesting, has understandable limitations beyond the low response rate of 30%. Other investigators may wish to attempt to reproduce this survey in their own communities or in other organizational settings.