Abstracts

Annual conference of the
International Society for Pelviperineology (ISPP)
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Selected abstracts summary

Scientific Committee: Shimon Ginath, Benny Feiner, Adi Y Weintraub

Benhamou R. et al. (Israel): following pelvic-floor surgery, mainly with mesh, a high rate of women had recovery of sexual activity and relief of dyspareunia. De novo dyspareunia rates were very low.

Ben-Zvi M. et al. (Israel): expression of the enzyme Heparanase (heparin sulfate degrading endoglycosidase) is more common in connective tissue from the uterosacral ligaments of women with compared to those without uterine prolapse, suggesting a role in the pathophysiology of uterine prolapse.

Çalışkan E. et al. (Turkey): found a more effective educational program for obstetricians and gynecologists to adapt and apply urogynecological surgeries for anterior compartment defects that includes a three-day course of theoretical education combined with cadaver and hands on surgery courses compared to two-day course of theoretical education followed by watching live surgery session.

Chechneva M. et al. (Russia): performing palliative, suboptimal and anti-pathophysiologic surgeries, without consideration of the anatomical defects and connective tissue dysplasia (CTD) are the main factors for recurrent pelvic organ prolapse and/or urinary incontinence following surgical treatment.

Eisenberg VH. et al. (Israel): primiparous women with diastasis rectus abdominis, diagnosed by ultrasound, had a longer second stage of labor, and that these measurements correlated with a higher PFDI-20 score in the urinary symptoms portion (UDI).

Groutz A. et al. (Israel): surgically induced weight loss by laparoscopic sleeve gastrectomy was associated with a significant improvement of female urinary incontinence and related QOL. Improvement was documented in POP and colorectal-anal distress symptoms but not in female sexual dysfunction.

Hizkiyahu R. et al. (Israel): women with vaginal colonization with Candida albicans during pregnancy had increased risk of vaginal tears and obstetric perineal trauma compared to women with normal vaginal flora.

Khazhieva MK. et al. (Russia): found that Fibulin-5 (Fbln5) gene polymorphism was associated with pelvic organ prolapse in women.

Levy G. et al. (Israel): results of the clinical use anchorless implant for the treatment of anterior and apical pelvic floor, which comprised of polypropylene mesh stretched within a solid flexible U-shaped frame, and inserted between the bladder and the vaginal mucosa with the lateral arms following the anatomy of the arcus-tendineus-fascia-pelvis without using other anchoring techniques, are promising, with no intra-operative or immediate post-operative complications and complete anatomical and subjective cure at one-year follow-up in a multicenter international study.

Markovsky O. et al. (Germany): found that pain symptoms associated to cystocele and rectocele stage II-IV were improved following pelvic floor reconstruction surgery using Elevate meshes in a prospective multicenter PROPEL study.

Weintraub AY. et al. (Israel): found excellent anatomical and quality of life results in patients with advanced POP treated with a skeletonized mesh implant (Seratom). No mesh exposure was recorded within the first year after surgery.

Yankobi T. et al. (Israel): low genital self-image was the main variable associated with sexual dysfunction in women with pelvic floor disorders. This variable was more important than self-reported pelvic disorder symptoms or type.

Zilberlicht A. et al. (Israel): overactive bladder symptoms in women may be aggravated by several somatic and psychological triggers which can be assessed by the SOPSETO questionnaire (34 statements’ questionnaire regarding Somatic, Psychological and Sexual Triggers for OAB). Some triggers seemed to correlate well with UDI-6 and IIQ-7 scores, implying their close interaction and potential involvement in the pathophysiology of the OAB syndrome. These triggers may serve as potential targets for behavioral therapy of this disorder.
1 Sexual activity and dyspareunia before and after pelvic-floor surgery

Benhamou R., Sharabi-Nov A., Ben-Shachar I., Marcus-Braun N.
Ziv Medical Center, Safed, Israel

Background. Sexual activity and dyspareunia in the elderly women are widely disregarded. Dyspareunia is often under-diagnosed despite its disabling consequences on sexuality and well-being and data about its prevalence show great discrepancies. Dyspareunia is often featured as a complication of pelvic organ prolapse (POP) reconstructive surgery and mainly mentioned with mesh surgery. However, current evidence about the impact of mesh on dyspareunia is conflicting and studies have proven that POP itself can have a detrimental impact on sexuality and body image. This study aims to provide more accurate data about sexual activity and dyspareunia in the elderly women and to compare data before and after different kind of surgeries with mesh.

Methods. 1334 files were included in this prospective cohort study which represents the entire women population that visited the urogynecology clinic in Ziv Medical Center, Safed, Israel, between 01/2011 until 01/2014 (excluding post-partum follow-up due to vaginal tear during labor). Data was collected from computerized files, including: demographic features (age, menopause, parity, BMI), sexual activity (yes/no), dyspareunia, cause of dyspareunia, diagnosis, type of surgery (if relevant), sexual activity and dyspareunia after surgery. Proportional test and Chi2-test were performed. The study has been approved by the Institutional ethical Review Board.

Results. Mean age of the population was 57.6 (SD=13.6). On average, the population was overweight (mean BMI= 27.8; SD=5.4). The mean number of deliveries was 3.8 (SD=2.2).70.8% of the population were postmenopausal women and 67.8% of the population were sexually active. Sexual activity was also calculated per age group (see « Table » below). Distribution of the diagnoses was as follows: 46.7% suffered from POP, 30.3% stress urinary incontinence (SUI), 21.2% overactive bladder (OAB), 14.9% mixed urinary incontinence, 6.3% recurrent urinary tract infections, 6.7% miscellaneous complaints. 480 women had surgery (28.5% prolapse repair with mesh, 41.3% mid-urethral sling, 27.9% had both POP and SUI repair, 2.3% other types of surgery). Among the 480 women who had surgery, 290 patients had completed at least 6 months of follow up and had results regarding their sexual activity. 34 (out of 290, 11.7%) were not sexually active before the surgery and 32 of them (94.1%) became sexually active after the surgery. 72 women (out of 324, 22.2%) suffered from dyspareunia before the surgery (26.4% due to atrophic vaginitis and 66.7% due to prolapse), while for 75% of those women who suffered from dyspareunia before the surgery, dyspareunia was resolved during follow-up after surgery. De novo mesh-induced dyspareunia was reported in only 3 cases (out of 290, 1.0%).

Conclusions. Elderly women do have a sexual life that is not insignificant. A thorough anamnesis is worth before doing any type of pelvic-floor surgery, and especially before proceeding to oblitative procedures like Le Fort colpocleisis. Pelvic-floor repair, in this study mainly with mesh, can allow women to recover a sexual activity and actually relieves them from dyspareunia much more than it provokes it. De novo dyspareunia rate was very low.

2 Expression of heparanase in uterosacral ligaments of women with or without uterine prolapse

Ben-Zvi M., Schreiber L., Sokmanov O., Tannus S., Neta I., Sagiv R., Bar J., Condrea C., Ginath S.
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Background. Pelvic organ prolapse (POP) is a global health problem for which the pathophysiological mechanism remains to be elucidated. The loss of extracellular matrix proteins is considered to be important in the molecular basis of this pathology. Heparanase is a heparin sulfate degrading endoglycosidase that has important roles in various biological processes, including proteoglycan degradation, and is a key component of the extracellular matrix.

The objective of this study was to compare expression of Heparanase in connective tissue of uterosacral ligaments in women with or without uterine prolapse.

Materials and Methods. Thirty-nine women who underwent hysterectomy for benign reasons enrolled in this study. Twenty-three women underwent vaginal hysterectomy (VH) for uterine prolapse (stage ≥3) and sixteen women underwent total abdominal hysterectomy (TAH) for fibroid uterus without uterine prolapse (stage <2). Uterosacral ligaments biopsies were obtained from all uterine specimens near its origin. All tissue samples were assessed separately by two pathologists blinded to the type of surgery, by immunohistochemistry with regard to presence of heparanase using anti-heparanse antibody 733.

Results. Women characteristics were presented in table 1. Positive staining for Heparanse was more common in the connective tissue of uterosacral ligaments in women with uterine prolapse. Positive staining was seen in 17/23 (73.9%) women with prolapse vs 16/26 (61.5%) women without.
uterine prolapse compared to 4/16 (25.0%) without uterine prolapse ($p = 0.007$). On multivariate logistic regression analysis, positive staining was independently associated with VH, after controlling for women’s age. In women with uterine heparanase immunostaining was noted as brown gargle (arrow) in the cytoplasmatic portion of the fibroblasts in the uterosacral ligaments prolapse (Figure 1 A,B). In women without prolapse absence of such delicate sign was more common (Figure 1 C,D).

**Conclusion.** Heparanase expression is more common in the connective tissue of uterosacral ligaments in women with uterine prolapse compared to normal, suggesting its role in the pathological processes of compromising pelvic floor function and the development of uterine prolapse.

### 3 Comparison of two different teaching methods in urogynecological surgery

**Çalışkan E., Akar B., Bayık N., Başbuğ A., Sarıbacak S., Sivasaloğlu A.**
**Bahçeşehir University & İstinye University, İstanbul; Duzce University, Düzce, Muğla Sıtkı Koçman University, Muğla, Turkey.**

**Background.** Theoretical education, watching live surgeries, cadaver courses, hands on live surgeries are commonly used methods in surgical education. We aimed to compare two different course methodology for Obstetrics and gynecology specialists to adapt and apply urogynecological surgeries.

**Method.** A prospective follow-up study was conducted after approval by Institutional Review Board. We aimed to compare the learning efficacy of a two day course of theoretical education followed by watching live surgery session (Group 1, n=30) to a newly introduced three day course of theoretical education followed by hands on fresh cadaver course and hands on live surgery course (Group 2, n=26). Independent samples t-test was used to compare continuous variables and chi-square test was used to compare categorical variables.

**Results.** The age, the time of working as specialist, number of urogynecological examinations were similar in the two groups ($p>0.05$). Previous Urogynecological experience score was 8.9 ± 4.2 in Group 1 and 10.8 ±4.8 in Group 2 ($p=0.13$). The frequency of previous malpractice claims and penalties were similar in the two groups. Four bladder perforations, one mesh infection occurred during hands on surgery session (13%, 4/30). The group 2 had significantly higher frequency of adapting and applying tension free vaginal tape, transobturator tape and double obturator mesh procedure than group 1 ($p<0.05$ for all comparisons). Minisling, posterior intravaginal sling and rectocele repair via mesh use was not statistically different in the two groups.

**Conclusion.** A three-day combined course of theoretical education, cadaver course and hands on surgery course is more effective for Obstetricians and Gynecologists to adapt and apply urogynecological surgeries of anterior compartment defects.

### 4 Clinical and ultrasound picture of patients with recurrent genital prolapse and urinary incontinence

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**Moscow Regional Institute of Obstetrics and Gynecology, Moscow, Russia**

**Background.** During 7 years (2007-2016) 108 patients with recurrent pelvic organ prolapse and/or urinary incontinence were analyzed. The assessment of the structures of the pelvic floor, urethral hypermobility, different fascial defects including rectovaginal fascia, rectocele signs, 3D reconstruction of the urethral sphincter, the assessment of previously placed synthetic materials were performed.
Methods. Analysis of the age and morbidity of the patients did not show any factors responding in development of relapse. Duration of recurrence formation was 1 to 18 years. All women had undergone previous prolapse and urinary incontinence surgery, and sometimes (in 13.8%) had more than one surgery. Severe POP and/or urinary incontinence were the reason for seeking medical help in 95% of cases. Patients with recurrent genital prolapse I-II degree after surgery and mild forms of incontinence usually did not request re-operation.

Results. Analysis of the clinical data and ultrasound examination using functional tests after repeated correction of POP and SUI found following factors worsening prognosis of surgical treatment in comparison with successful treatment:

- “Palliative surgery” – 17.6%; 10.3% was recurrence of rectocele after posterior colporraphy, 7.3% – recurrent cystocele after anterior colporraphy in cases of high facial defects.
- Perform “antipathophysiological” operations: 13.2% of relapses occurred after hysterovariofixation.
- Selecting the correction method of surgery without careful consideration of the location and the severity of anatomical defects: 27.8% of recurrences are related to insufficient examination before first operation: 8.8% recurrence of urinary incontinence after vaginopexy – urethral sphincter deficiency, 7.3% recurrence of POP – undiagnosed fascial defects, in 11.7% – rectocele after correction of the apex and the anterior wall of the vagina.
- The connective tissue dysplasia (CTD) as a factor that does not allow the adequate correction by native tissue. In 17.6% of recurrent patients with severe dysplasia of the connective tissue was little chance for success in “classical” surgery with native tissues.
- Suboptimal surgical technique using synthetic materials – 23.8%. Mainly due to shrinkage of polypropylene in the longitudinal or transverse direction; midline tension-free placement of prosthesis without covering all edges of fascial defect; oblique and asymmetric position of the suburethral sling, its dislocation in any direction from the midurethra.

Conclusion. Understanding of the causes of suboptimal results in POP/SUI surgery in terms of anatomically correct reposition of the pelvic organs should facilitate optimal surgical results.

5 Is there an association between diastasis rectus abdominis (DRA) and levator trauma in postpartum primiparous women after traumatic labor?

Eisenberg V.H., Sela L., Masharawi Y.
Sheba Medical Center, Ramat-Gan, Israel

Background and Objectives. DRA involves a widening of the linea alba during pregnancy which may persist in postpartum women. Our aim was to investigate the relationship between DRA and birth related pelvic floor trauma in primiparous women using 2D/3D/4D abdominal/transperineal ultrasound.

Methods. Primiparous postpartum women referred to the pelvic floor clinic after traumatic labor answered a PF DI20 questionnaire, underwent abdominal ultrasound for DRA at three locations during rest and curl, and 2D/3D/4D pelvic floor ultrasound using a Voluson E6 system at rest, Valsalva and pelvic floor contraction for pelvic floor mobility, levator morphology and avulsion assessment using tomographic ultrasound imaging (TUI). DRA was defined as one of three measurements of ≥ 22 mm at 3 cm above the umbilicus, ≥ 20 mm at the upper margin of the umbilical ring, and ≥ 16 mm at 2 cm below the umbilicus. Statistical analysis was performed using SPSS for associations between DRA and pelvic floor trauma (p<0.05).

Results. 18 women with (Group 1) and 18 without (Group 2) DRA were examined at a median 5 mo (2-8) since delivery. The median age was 28 years (20-38), BMI 22.8 (17.7-35.2), 22 NVD and 14 vacuum deliveries, gestational age 40.5 weeks (36-41), fetal weight 3360 grams (3303-4535), episiotomy rate 72.4%, with no difference between the groups. Women in Group 1 had a longer second stage duration (189 vs. 86 min), more male babies, greater epidural use, and a higher PF DI20 score in the urinary symptoms portion (UDI), all p<0.05. There was no difference in pelvic floor mobility or in levator hiatus measurements between the groups. There were more bilateral avulsion defects (58.8 vs. 41.2%) and a higher levator avulsion TUI score in Group 1, but this did not reach statistical significance.

Conclusions. DRA is associated with a longer second stage, greater epidural use, postpartum urinary complaints and marginally higher avulsion rates, but not with pelvic floor mobility or hiatal area enlargement. Our results may suggest that DRA is associated with inherent tissue factors that may affect labor progress. The relationships with levator trauma needs further study.

Figure: Measurement of inter recti distance (IRD) using ultrasound imaging
6 Effects of bariatric surgery on female lower urinary tract symptoms and sexual function

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Introduction. Obesity is an established and modifiable risk factor for urinary incontinence (UI), but comprehensive data regarding the effect of weight loss on various aspects of pelvic floor disorders, incontinence-related female sexual dysfunction (FSD), or quality of life (QOL) are lacking. The present study was undertaken to assess the effect of significant rapid weight loss on lower urinary tract symptoms (LUTS), pelvic floor disorders, incontinence-related FSD and QOL parameters among women undergoing laparoscopic sleeve gastrectomy.

Methods. 150 consecutive obese women (mean age 42.6±12.8), who underwent laparoscopic sleeve gastrectomy in a single university-affiliated medical center, were prospectively enrolled. The study protocol was approved by the local hospital Helsinki committee. Four validated questionnaires on UI (ICIQ UI), LUTS and incontinence-related QOL (BFLUTS- SF), pelvic floor disorders (PFDI-20), and incontinence-related FSD (PISQ-12) were used to evaluate patient’s symptoms before and 3-6 months after surgery. A positive answer to the question “How often do you leak urine?” on the ICIQ UI questionnaire was used to define the presence or absence of UI. Patients were further divided into two subgroups according to the presence or absence of preoperative UI.

Results. Preoperatively, 56 (37.3%) women (mean age 47±11.9 years, mean BMI 41.2±4.9 kg/m²) had UI, 33 (59%) of whom had stress UI, 17 (30.4%) had mixed UI, and 4 (7.1%) others had urgency UI. Pre and postoperative results of the 56 preoperatively incontinent women are presented in Table 1. Overall, surgically induced weight loss was associated with statistically significant improvement in UI, filling symptoms, and QOL parameters. Further, 27 (48.2%) women reported complete resolution of their UI following weight loss. Improvement was also documented in POP and colorectal scores, however statistical significance was marginal. Interestingly, there was no postoperative statistically significant improvement in FSD, evaluated by using the PISQ-12 questionnaire.

Conclusions. Surgically induced weight loss is associated with a significant improvement of female UI and related QOL. Additional improvement was documented in symptoms associated with POP and colorectal-anal distress. Larger studies with longer follow up are required to investigate the possible impacts of bariatric surgery on various aspects of pelvic floor function.

7 Is vaginal colonization with candida during pregnancy a risk factor for vaginal tears and obstetric perineal trauma?

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Background. Vaginal and perineal tears during labor are common and may lead to short and long term complications including blood loss, postpartum pain, infection and dehiscence, sexual dysfunction and development of urinary stress incontinence and pelvic organ prolapse later in life. The prevalence of vaginal candidiasis has been reported to be as high as 20% and it is responsible for 30% of vaginitis cases. An association between candida infection and traumatic vaginal births has not yet been investigated. We investigated whether candidiasis during pregnancy is associated with vaginal and perineal tears.

Methods. A prospective cohort study was undertaken between the years 2014-2016, comparing pregnancy and delivery characteristics of patients with and without colonization with candida during pregnancy. Women who had a vaginal culture taken during pregnancy and who had either candida positive or normal flora were included. Patients that were delivered by cesarean section were excluded from the analysis. The local ethics institutional review board approved the study. To test the statistical significance of the categorical variables, the chi square test or Fisher’s exact test was used, where appropriate. For continuous variables, Student’s t-test was used.

Results. During the study period, 95 patients with vaginal candida during pregnancy (of whom 73% had candida albicans) and 104 controls with normal vaginal flora were included in the analysis. Pregnancy and delivery characteristics of candida posi-
tive patients and those with normal vaginal flora are presented in the table. A borderline significant difference in the prevalence of gestational diabetes was noted between the groups. Pregnancy and delivery outcomes (i.e. Mode of delivery, birthweight, Apgar score) were comparable and no increased risk of vaginal tears was found in the candida group. However, when analyzing only *Candida albicans* sp. (that has an increased prevalence during pregnancy), an increased risk for perineal tears was noted.

**Conclusions.** Vaginal colonization with *Candida albicans* during pregnancy is associated with an increased risk of vaginal tears and obstetric perineal trauma.

<table>
<thead>
<tr>
<th>Variables</th>
<th>All Candida sp. positive N=95</th>
<th>Normal flora N=104</th>
<th>p value</th>
<th>Candida albicans positive N=70</th>
<th>Normal flora N=104</th>
<th>p value</th>
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</thead>
<tbody>
<tr>
<td>Maternal age</td>
<td>28.69±5.36</td>
<td>28.69±4.81</td>
<td>0.99</td>
<td>28.91±5.01</td>
<td>28.69±4.81</td>
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<td>Gravidity</td>
<td>2.91±1.86</td>
<td>2.90±2.23</td>
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<td>2.69±1.45</td>
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<td>Parity</td>
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<td>2.44±1.72</td>
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<td>Gestational diabetes mellitus</td>
<td>3 (3.2)</td>
<td>7 (10.4)</td>
<td>0.06</td>
<td>2 (2.9)</td>
<td>7 (10.4)</td>
<td>0.09</td>
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<td>Gestational weeks at delivery</td>
<td>38.88±1.72</td>
<td>39.07±1.67</td>
<td>0.44</td>
<td>38.91±1.77</td>
<td>39.07±1.67</td>
<td>0.56</td>
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<td>Mode of delivery</td>
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<tr>
<td>Vaginal</td>
<td>87 (91.6)</td>
<td>65 (98.5)</td>
<td>0.06</td>
<td>62 (88.6)</td>
<td>65 (98.5)</td>
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<td>Vacuum</td>
<td>8 (8.4)</td>
<td>1 (1.5)</td>
<td>8 (11.4)</td>
<td>1 (1.5)</td>
<td></td>
<td></td>
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<tr>
<td>Perineal tear</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>No tear</td>
<td>62 (66.0)</td>
<td>77 (75.5)</td>
<td>0.13</td>
<td>42 (60.0)</td>
<td>77 (75.5)</td>
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<td>1-3 degree</td>
<td>32 (34.4)</td>
<td>25 (24.5)</td>
<td>28 (40.0)</td>
<td>25 (24.5)</td>
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<tr>
<td>Fetal birth weight</td>
<td>3222.88±437.74</td>
<td>3216.71±418.59</td>
<td>0.92</td>
<td>3213.31±443.23</td>
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</table>

8 **Fibulin-5 (Fbln5) gene polymorphism is associated with pelvic organ prolapse**


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**What is known already.** *FBLN5* encodes a key protein of elastic fiber matrix assembly and function, contributing to maintaining pelvic support and playing the crucial role in the pathophysiology of POP. *FBLN5* polymorphism has never been studied in relation to POP; a very small amount of association studies of other multifactorial disorders did not reveal any associations with *FBLN5*; a tag SNP approach has never been applied to SNP selection in the *FBLN5* gene.

**Study question.** Do common single-nucleotide polymorphisms (SNPs) of the *FBLN5* gene influence susceptibility to pelvic organ prolapse (POP)?

**Study design, size, duration.** In this case-control study, 210 patients with pelvic organ prolapse (stages III-IV) and 292 control subjects with no even minimal prolapse were recruited between December 2011 and September 2013.

**Participants/materials, setting, methods.** A total of eleven tag SNPs of the *FBLN5* gene were genotyped using the polymerase chain reaction with confronting two-pair primers (PCR–CTPP). Multiple logistic regression analysis adjusted for age, body mass index and vaginal parity was applied to evaluate the associations between *FBLN5* SNPs and POP in the entire set and in the strata with without perineal trauma (episiotomy/spontaneous perineal laceration) and fetal macrosomia. Regression analysis was used to study the role of *FBLN5* polymorphism in susceptibility to spontaneous perineal laceration during childbirth. Tests for haplotype association with POP were performed.

**Main results and the role of chance.** The top association signal was found for SNP rs2018736 (protective effect for the minor allele A; recessive model) in the entire set: $P = 0.0026$, $OR = 0.42$, 95% CI: 0.24-0.75; in the strata with perineal trauma: $P = 0.0018$, $OR = 0.27$, 95% CI: 0.11–64; and in the strata with fetal macrosomia: $P = 0.013$, $OR = 0.14$, 95% CI: 0.03-0.71. In the strata without perineal trauma and fetal macrosomia results for these and other SNPs were non-significant due to the smaller effect size. Haplotypes including rs2018736 were associated with POP in the entire set and in the strata with pelvic floor injury. *FBLN5* SNPs were not associated with susceptibility to spontaneous perineal laceration.

**Limitations, reasons for caution.** Due to modest sample size and only one ethnicity (Caucasians, mainly Russians) included in our assay, replication studies are warranted.

**Summary answer.** We found significant associations of tag SNPs rs2018736 and rs12589592 with POP.
**Wider implications of the findings.** Current data provide, for the first time, strong evidence that several common SNPs of the *FBLN5* gene are associated with POP especially after pelvic floor injury presumably due to extensive distension. Ours is the first genetic association study of POP taking into account clinical conditions leading to considerable pelvic relaxation (perineal trauma and fetal macrosomia). We have also shown that *FBLN5* gene is not associated with susceptibility to perineal laceration. Our findings suggest that *FBLN5* polymorphism rather influences the recovery of the vagina after delivery than vagina’s elasticity earlier in life. These results are in line with data obtained in *FBLN5* knockout mice. The results are clinically important providing a rationale for fibulin-5–targeted therapy in women combining genetic and clinical determinants of higher risk for POP.

**9 Anchorless implant for the treatment of anterior and apical pelvic floor compartment prolapse**

**Levy G., Fekete Z., Padoa A., Bartfai G., Pajor L., Cervigni M.**

Maynei Hayeshua Medical Center, Bnei Brak, Israel, Szeged University Hospital, Szeged, Hungary, Asaf HaRofeh Medical Center, Israel, Catholic University, Rome, Italy

**Background.** The aim of this study was to evaluate a new surgical technique that has the potential to provide the benefits of mesh implants while eliminating complications of current techniques. The treatment involves surgical placement of an implant, which comprises polypropylene mesh stretched within a solid frame, for the treatment of anterior and apical vaginal prolapse.

**Methods.** This is a multicenter, international study, which was approved by the relevant health ministries and local ethical committees (MHM# 032-15). The implant is comprised of polypropylene (PP) mesh stretched within a solid flexible frame. An ultra-light PP mesh (16 gr/m²) is stretched and retained in place by a U-shaped structure. The device is inserted between the bladder and the vaginal mucosa with the lateral arms following the anatomy of the arcus-tendineus-fascia-pelvis (ATFP). No other anchoring techniques are used. Exclusion criteria included: previous vaginal mesh surgery, > 75 years old, POP-Q less than 2nd degree prolapse or asymptomatic POP. Demographic data, pre-surgical POP-Q scoring and QoL questionnaires (PFDI) were collected. Surgical data included intra and post-operative complications, time of surgery and estimated blood loss. Patients were followed at 2 weeks, 2, 6 and 12 months post-surgery.

**Results.** Twenty women underwent transvaginal repair of anterior and apical compartment prolapse using the anchorless implant. Average age was 62.1 (50-75 years old), average parity was 4.0 (1-16 deliveries). The average BMI was 28. Nineteen (95%) patients suffered from both anterior and apical compartments prolapse, while one (5%) patient had only anterior prolapse. Surgical time for the implantation averaged 31.2 min (21-50 min). Estimated blood loss averaged 205 ml (150-500 ml). Estimated blood loss for patients who underwent implant-only procedure averaged 165 ml. No intra-operative complications were observed. One case (5%) of frame erosion into the anterior vaginal wall was documented 8 months post-procedure. The eroded part of the frame was resected under local anesthesia in an ambulatory setting. At one year follow up, all women had complete anatomical cure with POP-Q measurements of the anterior and apical compartment at normal values (Table 1). No mesh erosions or chronic pelvic pain were documented at follow up. PFDI scores showed significant improvement of the prolapse domain. No deterioration was noted in the incontinence domain of the questionnaire.

**Conclusions.** Results of the clinical use of this anchorless implant for the treatment of anterior and apical vaginal wall prolapse are promising, with no intra-operative or immediate post-operative complications and complete anatomical and subjective cure at one-year follow-up. Results suggest that the safety profile and clinical outcome of an anchorless implant is potentially better than that reported for traditional trans-vaginal surgical meshes. These results need to be confirmed with a larger sample size and a longer follow-up in order to clinically evaluate this new anchorless support concept to treat POP.

**Disclosure.** Dr. Levy has financial relationship with Lyra Medical.

**Table 1. POP-Q measurements at baseline vs. follow-up**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-Operative</th>
<th>Post-Operative</th>
</tr>
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<tbody>
<tr>
<td>POP-Q</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stage 0</td>
<td>0</td>
<td>17 (85%)</td>
</tr>
<tr>
<td>Stage 1</td>
<td>0</td>
<td>3 (15 %)</td>
</tr>
<tr>
<td>Stage 2</td>
<td>7 (35%)</td>
<td>0</td>
</tr>
<tr>
<td>Stage 3</td>
<td>5 (25%)</td>
<td>0</td>
</tr>
<tr>
<td>Stage 4</td>
<td>8 (40%)</td>
<td>0</td>
</tr>
<tr>
<td>Mean point Aa (cm)*</td>
<td>1.4 ((-1)-3)</td>
<td>-2.95 ((-3)-(-2))</td>
</tr>
<tr>
<td>Mean point Ba (cm)*</td>
<td>2.3 ((-1)-6)</td>
<td>-2.8 ((-3)-(-2))</td>
</tr>
<tr>
<td>Mean point C (cm)*</td>
<td>0.4 ((-7)-6)</td>
<td>-6.9 ((-10)-(-3))</td>
</tr>
</tbody>
</table>

*Values given as mean (range)
10 Prolapse associated pelvic pain: frequency, severity and cure rates after pelvic floor surgery

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Background. 1996 Petros postulated that severe pelvic pain can be caused by apical vaginal descent, which could be cured by pelvic floor surgery. Analysing the data of the Propel-Study we pursued the question, whether and to which severity pain symptoms occur in patients with vaginal prolapse and how they have been improved/cured after surgery.

Methods. With the prospective multicentre (10 US & 6 EU) Propel-study time and efficacy effects of vaginal mesh-supported pelvic floor reconstruction were investigated in female patients with cystocele stage II-IV (N = 135) or rectocele stage II-IV (N = 135) with or without apical prolapse. The preoperative apical prolapse stage was measured to 0 (N = 24), 1 (N =104) and 2-4 (N=124). The patients were observed preoperatively (baseline) and 6, 12 and 24 months after surgery using POP-Q-measurements and the following PFDI questionnaires: Questions 1 (pressure in the lower abdomen), 2 (pain in the lower abdomen or genital area), 3 (heaviness or dullness in the pelvic area), 6 (pelvic discomfort when standing or physically exerting), 7 (pain in lower back on most days) and 46 (abdominal or lower back pain when straining for any reason) and considered for each of these symptoms only three categories “no symptoms or not at all”, “somewhat or moderately” and “quite a bit”.

Results. The prevalence rates of the outcome “no symptom or not at all” in the total population for all investigated symptoms significantly increased during the time from 45.5%-60.3% preoperatively to 75.2-92.4% 24 months after surgery, whereas the prevalence rates of the symptome outcome “quite a bit” was significantly reduced from 9.4-22.7% preoperatively to 1.1-4.9% at the end of the observation period. The improvement effects even appeared 6 months after surgery and lasted to 2 years (see table). Further analysis revealed similar significant time and efficacy effects on all symptom categories when considering the subpopulations defined by the cystocele or rectocele repair.

Conclusions. Prolapse associated pain symptoms occur in 39.7-54.5% (severe symptoms in 9.4-22.7%) of patients with cystoceles or rectoceles stage II-IV with or without apical prolapse. Pelvic floor reconstruction using the Elevate meshes increases the symptomfree patients in the longterm significantly. The severe symptoms of PFDI 1, 2, 3 and 6 are improved in about 80-90%; improvements also occurred in the severe symptoms of PFDI 7 and 46.

Disclosures. Honorary for data collection by American Medical Systems.

11 Efficacy and safety of skeletonized mesh implants for advanced pelvic organ prolapse: 12 months’ follow-up

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Background. According to the integral theory, vaginal mesh implants for pelvic organ prolapse (POP) reconstruction should be more ligamentary than fascial. This idea may better follow the natural pelvic floor connective tissue architecture and reduce significantly the total mesh implant mass. In turn, this could facilitate reducing mesh related operative complications, while preserving the reinforcement impact with POP reconstruction. We aimed to examine the feasibility, safety and operative outcome of a newly designed skeletonized mesh, secured to the sacrospinous ligaments, in advanced POP repair.

Methods. Women with advanced POP underwent repair of stage III or greater anterior or posterior and apical compartment prolapse using skeletonized mesh implants (Seratom PA MR MN® system - SERAG-WIESSNER, Naila, Germany). Anatomical outcomes were assessed using Pelvic Organ Prolapse Quantification staging and functional outcomes were self-reported by the patients at 6 weeks, 6 months and the 12 months. Anatomical and functional cure rates, post-operative pain and dyspareunia as well as intra and post-operative complications were reported. Success was defined as a composite of no bulge symptoms and no prolapse beyond the hymenal ring.

Results. At 12 months, data was available for 103 of the 105 patients originally recruited. Intra-operative complications included 2 (2%) cases of cystotomy that were corrected vaginally. The immediate post-operative complications included 1 patient (1%) with UTL, 4 (3.9%) cases of self-resolved hematomas, and 6 (5.8%) cases of bladder outlet obstruction. At 12 months a high success rate and low complication rate was noted. Recurrence of prolapse was reported by 7 (6.6%) patients. However only 4 (3.8%) underwent a repeat procedure. Two patient developed de novo SUI, and 6 (5.7%) developed dyspareunia. No cases of mesh erosion/extrusion were noted.

Conclusion. The present study showed excellent anatomical and quality of life results in patients with advanced POP treated with a skeletonized and reduced mesh system. No mesh exposure was recorded within the first year after surgery.

Disclosure. This study received no funding: MN is founder of POP Medical Solutions. All the other authors declare no relevant conflict of interest.
12 The impact of genital self-image on sexual function in women with pelvic floor disorders
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Background. There is conflicting evidence in the literature regarding the different effects of urinary incontinence and pelvic organ prolapse over sexual function and the possible factors associated with it. There are few studies that focus on the demographic and psychological variables, such as genital self-image, and include general issues of distress. We aimed to assess the impact of genital self-image on sexual function in women with pelvic floor disorders.

Methods. Between August 2014 and June 2015, 155 women in a urogynecology outpatient clinic of a major tertiary health center completed the Female Sexual Function Index (FSFI), the Genital Self-Image Scale-20 (GSIS-20), Pelvic Floor Distress Inventory (PFDI-20), Brief Symptom Inventory-18 (BSI-18), and a demographic questionnaire.

Results. Linear regression showed that the GSIS-20 significantly predicted FSFI when controlling for age and depression (Beta=0.426, p<0.001). Due to the low response rate to the FSFI questionnaire (48.4%), a second analysis was conducted in order to characterize the responders. On multiple logistic regression, non-responders were positively correlated to age (OR=5.4, p=0.02), not being in a relationship (OR=14.4, p<0.001), and with depression (OR=4.1, p=0.042). A marginally significant positive correlation was found with symptom severity (OR=3.6, p=0.059).

Conclusions. Low genital self-image is the main variable associated with sexual function in women with pelvic floor disorders. This variable is more important than self-reported pelvic disorder symptoms or type. As sexual function is an integral part of quality-of-life, we propose that gynecologists question women on that topic, especially older women, who are not in a relationship or are depressed.

13 Somatic, psychological and sexual triggers for overactive bladder syndrome
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Background. Overactive bladder (OAB) symptoms may be aggravated by various factors such as urinary tract infection, pelvic irradiation, medications and climate changes. Many patients describe somatic, psychological and sexual triggers for their overactive bladder (OAB) symptoms. It is postulated that characterizing these triggers may help refine our understanding of OAB pathophysiology and aid in developing behavioral therapies for alleviating symptoms and improving patients’ QoL. Therefore, the aim of this study was to characterize somatic, psychological and sexual triggers for OAB and assess their impact on patients’ symptoms and quality of life (QoL).

Methods. A 34 statements’ questionnaire regarding Somatic, Psychological and Sexual Triggers for OAB (SOPSETO questionnaire), was developed specifically for this study. Women were asked to rate their agreement to each statement on a 5-point Likert scale and to fill the Urogenital Distress Inventory-6 (UDI-6) and Incontinence Impact Questionnaire-7 (IIQ-7). Statistical analysis was preformed to determine the prevalence of each trigger and its correlation to the UDI-6 and IIQ-7. All subjects signed an informed consent form approved by the Institutional Review Board Committee for Human Subject at Carmel Lady Davis Medical Center, Haifa, Israel (CMC 0104-14).

Results. 64 women enroled in the study. Reliability of the SOPSETO questionnaire was considerable with Cronbach’s alpha of 0.73-0.88. Construct validity was also high with good correlation between the SOPSETO and the UDI-6 and IIQ-7 questionnaires. The triggers: Being far from toilets (r=0.32, p=0.004), swimming (r=0.44, p=0.02), taking a shower/bath (r=0.36, p=0.004), touching water (r=0.35, p=0.004), stepping out of the car (r=0.32, p=0.014) and having an orgasm (r=0.59, p=0.001) were most significantly correlated with the total UDI-6 score. The triggers: Having an orgasm (r=0.4, p=0.033), during intercourse (r=0.53, p=0.002), stepping out of the car (r=0.45, p=0.001), and touching water (r=0.28, p=0.03) most significantly correlated with the total IIQ-7 score.

Conclusions. OAB symptoms may be aggravated by several somatic and psychological triggers which can be assessed by the SOPSETO questionnaire. Some triggers seemed to correlate well with UDI-6 and IIQ-7 scores, implying their close interaction and potential involvement in the pathophysiology of the OAB syndrome. These triggers may serve as potential targets for behavioral therapy of this disorder.