2018 Annual Scientific Meeting

Poster Abstracts

Presentation Dates:
Friday, 19 October 2018
&
Saturday, 20 October 2018

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(1) Pudendal Neuralgia

Erdenechimeg Tserendorj[1]; [1] Medical University of Mongolia
Presented By: Erdenechimeg Tserendorj

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective

Pudendal neuralgia is a condition that causes pain, discomfort, or numbness in your pelvis or genitals. It happens when a major nerve in the lower body is damaged or irritated, and it can make it hard to use the bathroom, have sex, or sit down.

Study Design and Outcomes

The PN has not studied in Mongolia. Although It's not clear exactly how many people have this condition in Mongolia, The International Pudendal Neuropathy Association estimates the incidence of this condition to be 1/100,000.
The pudendal nerve runs from the back of the pelvis to near the base of your penis or vagina, where it branches off into other nerves.

Methods

- According to The Pudendal Neuralgia Association, PN is a pain lasting three and more months. There are several causes:
- Trauma to the area of the pudendal nerve caused by cycling, childbirth, surgeries, squatting exercises
- Bio-mechanical abnormalities
- Chronic constipation, repetitive vaginal infections

Results

The final diagnosis of PN is based on person having several or all of these criteria:

- Typical PN symptoms
- MRN, MRI
- Pain elected upon pressing along the anatomy of the nerve
- Elimination of other diseases or conditions as the cause
- Positive response to the pudendal nerve block

Conclusions

Most people with pudendal neuralgia get treatment with a combination of physical therapy, lifestyle changes, and medicines.
Pudendal nerve decompression surgery is an option that is usually considered after more conservative therapies fail.
It is necessary to improve our knowledge and ability to treat the PN.

Acknowledgments/Disclosures

It is necessary to improve our knowledge and ability to treat the PN.

(2) Prevalence of Associated Bowel, Sexual and Orthopedic Pain Symptoms in Patients with Confirmed Pelvic Floor Dysfunction

Nicole Cozean[1], Jesse Cozean[1]; [1] PelvicSanity, Inc.
Presented By: Nicole Cozean

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective
Patients with pelvic floor dysfunction often present with associated conditions. In many cases, patients are unaware there is a relationship between these associated conditions and their pelvic floor issues. In this study, we examined a representative patient sample from a specialty pelvic floor physical therapy clinic to determine the prevalence of other symptoms in patients with confirmed pelvic floor dysfunction, including bowel/GI symptoms, sexual dysfunction, orthopedic pelvic pain, anxiety and depression, and history of tailbone injury.

Study Design and Outcomes
To ensure a representative sample, a retrospective analysis examined 50 consecutive patient charts of patients with confirmed pelvic floor dysfunction. Patients were specifically asked about bowel/GI symptoms, sexual function, anxiety and depression, and tailbone trauma on their intake forms and in their initial evaluation.

Methods
Results were gathered from a retrospective chart review. The prevalence of specific symptoms (e.g., constipation) was tracked, along with determining how many patients fit into the broader category (e.g, bowel dysfunction). Fifty consecutive patients were analyzed over May-June 2018.

Results
Results indicated that patients with confirmed pelvic floor dysfunction are at much higher risk for bowel symptoms and sexual dysfunction than the population at large. Relatively few patients presented to physical therapy with their primary complaint as either bowel symptoms (4%) or sexual pain (14%), while the most common primary complaints were pelvic pain (70%).

In total, 73% of patients reported at least one symptom of bowel dysfunction, including constipation (46%), incomplete emptying of their bowels (42%), having to strain with bowel movements (35%), and fecal incontinence (13%).

Sexual dysfunction was nearly as common, with 69% of patients reporting associated sexual symptoms. These included painful intercourse (53%), feeling of dryness in women (45%), pain following intercourse (41%), sexual activity increasing their other symptoms (29%), and pain with arousal (22%). In total, 57% of patients reported not being satisfied with their sexual activity.

A total of 80% of patients reported a history of orthopedic pelvic pain. The most common was low back pain (73%), followed by hip pain (39%), sciatica (33%) and groin pain (22%).

Patients also reported a high incidence of past tailbone trauma (47%), and 43% of patients reported receiving treatment for either anxiety or depression.

Conclusions

While bowel or sexual dysfunction is not often listed as a primary complaint by patients in a pelvic floor physical therapy setting, the majority of patients struggle with these related symptoms. Many patients are surprised to learn that bowel, sexual, or orthopedic symptoms are related to their pelvic floor dysfunction.

Orthopedic pelvic pain has been shown to significantly influence the pelvic floor, and more research is needed into the relationship on the pelvic floor of common orthopedic (low back, hip, groin, SI joint, or tailbone) dysfunction.

Additional education is necessary in primary medical fields to inform patients they can seek help specifically for gastrointestinal and sexual symptoms from a pelvic floor physical therapist. Previous reports have shown that more than 90% of patients either were not referred to pelvic floor physical therapy by their physician or felt their referral was significantly delayed. In previous research, a pelvic floor dysfunction screening protocol was developed to recognize pelvic floor dysfunction earlier.

A more widespread recognition that pelvic floor dysfunction is often associated with bowel dysfunction, sexual dysfunction, and orthopedic pelvic pain can allow patients to get earlier, more effective treatment for these symptoms.

Acknowledgments/Disclosures

(3) Acupuncture for Female Interstitial Cystitis/Painful Bladder Syndrome: A Randomized Controlled Trial

Lauren Westbay[1], Cara Joyce[1], Mary Tulke[1], Colleen Fitzgerald[1]; [1] Loyola University Medical Center
Presented By: Larissa Bresler

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective

Current treatments for interstitial cystitis/painful bladder syndrome (IC/PBS) have limited success and/or problematic side effects, yet there has been minimal research studying effective complementary and alternative medicine approaches. Acupuncture has proven efficacy in other chronic pain disorders, but has not been well studied in IC/BPS. This study was designed to determine the safety, tolerability, and effectiveness of acupuncture in reducing pain in women with IC/PBS.

Study Design and Outcomes

This prospective randomized single blinded study compared electro-acupuncture to minimal acupuncture over 7 weekly sessions in women with symptoms of urinary frequency, urgency, and bladder pain for greater than 6 months. The primary aim was to assess the difference in the worst pain scores at the end of treatment for each group using the Brief Pain Inventory-Short form. Secondary outcomes included comparing the average pain, pain severity, and pain interference scores from the Brief Pain Inventory-Short From after 7 weeks (end of treatment) and 12 weeks, as well as the comparing the proportion of patients with levator ani tenderness on exam at the end of treatment between the two groups.

Methods

One board certified urologist double boarded in medical acupuncture preformed the acupuncture and exam. Patients abstained from opioid use for the study duration. The Brief Pain Inventory-Short Form was used to assess pain (worst pain, average pain, and pain severity score) and quality of life (pain interference score) after 7 weeks (end of treatment) and 12 weeks. Physical exam was also performed to assess tenderness. Linear mixed-effects models were used to estimate mean and standard error of pain scores for each acupuncture type at baseline, end of treatment, and at 12 weeks, as well as test for group differences over time. Differences in proportions of tenderness outcomes were assessed for statistical significance with exact McNemar's tests.

Results

21 patients were randomized to electro-acupuncture (n=11) or minimal acupuncture (n=10). 20 patients had previously failed second-line treatments and 10 had failed third-line treatments. There were no adverse events and all patients tolerated the acupuncture well. Both groups showed significant improvement in worst pain at the end of treatment with a change from baseline of -2.91Â±0.59 (p=0.007) and -2.09Â±0.68 ($p < 0.001$) for electro-acupuncture and minimal acupuncture respectively. However there were no differences between the groups (p=0.37). Results were similar at 12 weeks. Average pain and pain severity score also showed

improvement for both groups at the end of treatment but no difference between groups (p>0.05 for all comparisons). Only the pain interference score showed greater improvement in the electro-acupuncture group compared to minimal acupuncture at the end of treatment, -3.28Â±0.51 versus -1.67Â±0.58 (p= 0.049). Although the within group change from baseline was still significant for the electro-acupuncture group at 12 weeks (-2.46Â±0.64, p=0.002), the between group difference was not maintained (p=0.13). Only the electro-acupuncture group showed significant decrease in the proportion of patients with levator ani tenderness and impaired voluntary relaxation (p < 0.05) at the end of treatment, but this was not maintained at 12 weeks.

Conclusions
Both electro-acupuncture and minimal acupuncture improved pain for IC/PBS patients during and after treatment. This study suggests that electro-acupuncture had greater improvement on pain interference and physical exam findings at the end of treatment, although not maintained after completion of therapy. With the lack of effective treatments for IC/PBS, this study demonstrates that patients improve with weekly acupuncture sessions and that electro-acupuncture specifically may have a greater role in quality of life improvement compared to minimal acupuncture.

Acknowledgments/Disclosures
This study was funded by the Interstitial Cystitis Association (ICA).

(4) Comparison of Sagittal Spinal Curvatures in Proffessional Musicians with and Without Pelvic Pain

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Presented By: Alime BUYUK GONEN

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective

Musculoskeletal pain, overuse and poor posture are common problems for musicians. These problems are generally referred to as playing related musculoskeletal disorders (PRMD). PRMD prevalence rate is very high in professional musicians especially who are playing more than 5 years. Prolonged sitting or standing while musician's performance and their extensive work in a poor posture causes musculoskeletal dysfunctions. Furthermore musican's posture is effected from these dysfunctions during their life. Instrument type is another issue for musician's posture. Many instruments like the bowed strings such as violin, cello, double bass, flute and guitar require instrument player to work constantly in an asymmetric playing posture. These instruments are played with one arm elevated, head rotated and bent and body rotated to one side, which may lead to unilateral static muscle work, postural disorders and demands a static muscle load to stabilize the shoulder blade and shoulder joint. While playing the flute, head and cervical spine rotate to one side causing overstretch of unilateral neck muscles. Altogether these make for asymmetric playing postures, with demands of simultaneous static and repetitive muscle work for long hours. Other instruments are held in a more symmetric position with arms closer to the body and the head directed frontally. This is the case with, for instance, the clarinet, oboe, recorder, piano, and percussion. Playing these instruments still involves static and repetitive muscle work of the upper extremity, neck- shoulder muscles. Due to high levels of muscle contraction and asymmetric or symmetric playing postures involving poor posture and postural disorders. Investigation of posture examination and musculoskeletal data is of essential importance in the assessment and understanding of poor posture and pain syndrome. Playing an instrument often requires a certain posture and asymmetric position that may affect the anteroposterior spinal curvatures and may lead to postural asymmetry. Postural asymmetry effect muscles all around pelvis leading pelvic pain. Current studies showed a relationship between poor posture and pelvic pain. The aim of the study was to investigate the curvatures of the vertebral column between two groups of musicians, with and without pelvic pain.

Study Design and Outcomes

This is a descriptive study enrolling professional musicians. Physical and postural examination was performed to collect global and segmental vertebral angles in sagittal plane with a special device called Spinal Mouse at upright and sitting positions during relaxed position, maximal trunk flexion and maximal trunk extension. Spinal mouse device in combination with the integrated computer software assesses the curvatures of the vertebral column without applying radiation. This allows measurement of global and segmental vertebral angles in sagittal and frontal planes and is used for posture and mobility assessment. The device is guided along the midline of the spine (or slightly paravertebrally in particularly thin individuals with prominent spinous processes) starting at the spinous process of C7 and finishing at the top of the anal crease (approximately S3); these landmarks are firstly determined by palpation and marked on the skin surface with a cosmetic pencil. This information is then used to calculate the relative positions of the sacrum and vertebral bodies of the underlying bony spinal column using an intelligent, recursive algorithm. Studies show that spinal mouse is an accurate and reliable device for measuring curvatures of the vertebral column.

Methods

Forty five professional musicians were recruited for the study. Professional musicians were categorized into two groups which include musicians with and without pelvic pain. The study protocol included an interview, measurement of somatic characteristics, and evaluation of body posture by spinal mouse device. Spinal curvature parameters recorded by the Spinal Mouse in each position were: all the individual motion segment angles (from T1-2 through to L5-S1), thoracic curvature (T1-2 to T11-12), lumbar curvature (T12-L1 to the sacrum), hip (sacral) angle, and trunk angle of inclination (angle subtended between the vertical and a line joining C7 to the sacrum). Determination of these parameters in standing, full flexion, and full extension then allowed calculation of the ranges of flexion and extension for the hips, lumbar spine, thoracic spine, and whole trunk. In addition, the range of flexion was determined for each vertebral motion segment (from T1-2 to L5-S1).

The three test positions adopted for each set of measures comprised:

1. Standing upright (in a relaxed position, focusing on a marker at eye level, feet shoulder width apart, knees straight, arms hanging by the side)
2. Maximal flexion (legs straight, trunk flexed as far as comfortably possible in an attempt to curl the head into the knees, hands gripping the back of the lower leg for stability, if necessary)
3. Maximal extension (legs straight, arms crossed over the front of the body, head in a neutral position, trunk extended as far as comfortably possible)

Results

The thoracolumbal parameters of the musicians' spine in the sagittal plane differ from the pelvic pain group. Musicians have pelvic pain were characterized by statistically more significantly decreased mobility of their thoracolumbal section of the spine in comparison with musicians without pelvic pain. The study showed that musicians with pelvic pain had limited spinal flexion mobility in T9-10 and T10-11 and decreased spinal range of flexion in T12-L1 and L1-2 at sitting position in sagital plane. There is also significantly limited spinal flexion mobility in T9-10 and T10-11, less spinal range of flexion in T12-L1 and L1-2 at standing position in sagital plane in musicians with pelvic pain. There is no differences the angles of thoracic kyphosis, lumbal lordosis, sacral inclination and lenght of spine between musicians with and without pelvic pain in sagital plane at sitting and standing position.

Conclusions

The pelvis lies below the lumbar spine and the sacroiliac joint connects both. Therefore, there is a direct relationship between pelvic posture and lumbar curvature. However, the current study found that no significant differences were detected in the lumbar curves in the trunk flexion tests among musicians with and without pelvic pain. Specific postures and movements during musical performance and training were associated with adaptations in sagittal spinal curvatures. The analysis of body posture in this study revealed that musicians with pelvic pain had significant limitation of spinal flexion mobility mainly in the thoracolumbal region in sagital plane. Postural problems are highly prevalent among musicians with pelvic pain. Future researches concerning the causes of pelvic pain among musicians should focus on their instrument types to optimize scientific quality.

Acknowledgments/Disclosures
No disclosure in this study

(5) Reproducibility of Valsalva Maneuver Derived Baroreflex Parameters

Candida Ustine[1], Jeff De Los Santos[1], Pippa Simpson[1], Gisela Chelimsky[1], Thomas Chelimsky[1]; [1] Medical College of Wisconsin
Presented By: Candida Ustine

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective
To determine the intra-subject variability of VM-derived baroreflex parameters.

Study Design and Outcomes
The valsalva maneuver (VM) can provide estimates of both vagal and sympathetic baroreflex sensitivity.

Methods
Subjects in the IRB-approved ICECAN trial return 5 times in 6 months for a series of 4 valsalva maneuvers, using 15â€• and 40 mmHg supine and at 30 degrees until good recordings were obtained. As per Singer et al, the vagal baroreflex component (BRS_v) constitutes the RR interval response to a preceding change in BP, either during vagal excitation (BRS_vup, from Phase IV), or vagal inhibition (BRS_vdown, from Phase II early) while Pressure Recovery Time (PRT) to baseline during phase IV reflects adrenergic baroreflex. A custom MATLAB script selected the BP and RR interval correlation with the best R2 among 0, 1 and 2 beat delays, and calculated BRS_v as the linear regression slope. We examined 4 VMs collected from 4 subjects over 2 visits and selected the highest quality VM for analysis based on the best R2 and absence of artifact. The spread of BRS values was also assessed in 3 subjects using all 4 VMs in each visit.

Results
The BRS_vdown and the BRS_vup were highly reproducible with Pearson correlations of 0.99 and 0.69 respectively. BRS_vdown did not correlate with BRS_vup. Except for 2 trials, the R2 for selected trials ranged from 0.88 to 0.96. Values for BRS_vup: S1: 0.002+/-0.001, S2: 0.002+/-0.0009, S3: 0.005+/-0.006; for BRS_vdown S1: 0.005+/-0.003, S2: 0.002+/-0.0008, S3: 0.009+/-0.008. The PRT clustered nicely for each subject across the 2 trials, S1: 5.7+/-2.91 seconds , S2: 2.67+/-0.92 seconds , S3: 1.13+/-0.33 seconds, S4: 2.44+/-0.75 seconds.

Conclusions
The VM baroreflex parameters show robust intra-subject reproducibility in this small sample, including BRS_vup, BRS_vdown, and PRT. There was little correlation between any of these parameters.

Acknowledgments/Disclosures

(6) Comparing Approaches to the Functional Connectivity of the Periaqueductal Gray Region

Douglas Bierer[1], Sonja Fenske[2], Cnadida Ustine[1], Jason Kutch[2], Gisela Chelimsky[1], Thomas Chelimsky[1]; [1] Medical college of Wisconsin,[2] University of Southern California
Presented By: Doug Bierer

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective

We compared 3 approaches to identification of the periaqueductal gray (PAG) region: (1) as in current literature as a standard-space sphere (Standard Space Sphere); (2) using MNI152 standard-space T1-weighted structural image trace of the PAG (Standard Space Trace) and (3) hand-drawn PAG in the subject space (Subject Specific Trace). We also investigated whether the type of scan sequence influenced the hand-drawn PAG trace on the 7T scanner.

Study Design and Outcomes

The PAG surrounds the cerebral aqueduct in the midbrain. The PAG is associated with descending pain modulation and has been shown to activate in response to painful stimuli in neuroimaging studies. It also modulates vagal outflow in proportion to pain reduction when directly stimulated through deep brain stimulation in humans. It may therefore constitute a critical site for the interface between autonomic and pain functions. We discovered standard PAG coordinates locate a region anterior to the true anatomical PAG location. These disparities prompted us to compare different approaches to PAG functional connectivity. Due to its small size and variability, the methods used to define PAG location take significant resources. Minimizing these may allow more effective investigation of PAG functional connectivity.

Methods

Data for our analysis were previously collected by the multi-site Multidisciplinary Approach to the Study of Chronic Pelvic Pain (MAPP) Research Network. Our analysis included a selection of 15 healthy subjects from the MAPP cohort balanced by site and age. For each of these subjects, the PAG was traced by hand using their T1 anatomical image to create a Subject Specific Trace. Functional connectivity was calculated by first parcellating the brain into 264 region of interest (ROI) using the Power Atlas and then processed through an Analysis of Functional Images (AFNI) pipeline. We determined the differences in functional connectivity for each ROI between the Subject Specific Trace and a) the Standard Space Sphere and b) the Standard Space Trace. We validated our results on a second group of 15 healthy subjects from the same MAPP cohort. To compare connectivity differences, a threshold of ï,±0.12 was chosen since around 50% of connectivity differences fall below this value in the Standard Space Sphere.

7T images of the PAG were also acquired via GE 7T MR950 system using two methods 1) BRAVO, T1-weighted isotropic images 2) a variation of MPRAGE, MPRAGE-WM-null, a T1-weighted gradient-echo sequence which utilizes a special adiabatic inversion pulse to help minimize white matter signal developed by Brian Rutt.

Results
Compared to the Subject Specific Trace (assumed to represent the gold standard), the Standard Space Sphere differed markedly in distribution of connectivity, with 50% of the ROIs (132 of 264) showing interquartile range greater than 0.12, in contrast to only 1% (3 of 264) using the Standard Space Trace. ROIs with large differences between Standard Space Sphere and the Subject Specific Trace are found in many critical brain systems, including the default mode network, sensorimotor network, and subcortical regions.

Regarding the best methodology to obtain the Subject Specific Trace, the 2 subjects that had both BRAVO and MPRAGE-WM-null scans showed a 2.18% and 6.23% difference between PAG volume traces drawn using the BRAVO and MPRAGE scan sequences respectively. The MPRAGE sequence provides easier delineation due to its ability to effectively suppress surrounding white matter signal.

Conclusions
Representing the PAG with the Standard Space Sphere may differ substantially from representations based on PAG structural anatomy. The Standard Sphere appears to be located more anterior in the midbrain than the anatomical location of the PAG, possibly near other critical brainstem structures. Differences between the Standard Space Trace and Subject Specific Trace are much smaller. Thus, we recommend careful consideration of whether the PAG is defined by the Standard Space Sphere as in the literature, or by the Standard Space Trace or even Subject Specific Trace when mapping the functional connectivity of the PAG in understanding links between threat, chronic pain and autonomic function.

Based on the minimal percent differences in PAG trace volumes for both the BRAVO and MPRAGE-WM-null scans, both can reasonably be used to create subject specific trace volumes. However, the MPRAGE-WM-null sequence minimization of white matter signal renders subject specific PAG trace more efficient than traditional T1 weighted BRAVO images. The absence of a standard for PAG identification makes current methodology susceptible to human variability. Future work will require standardization of this procedure.

Acknowledgments/Disclosures
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(7) Comparison of 3T and 7T scanners for imaging periaqueductal gray (PAG) connectivity and anatomy

Candida Ustine[1], Lisa Conant[1], Ke Yan[1], Tugan Muftuler[1], Pippa Simpson[1], Douglas Bierer[1], Thomas Chelimsky[1], Gisela Chelimsky[1]; [1] Medical college of Wisconsin
Presented By: Doug Bierer

Friday, October 19, 2018
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Objective
7T fMRI is intended to offer better anatomic detail of small brainstem structures like the periaqueductal gray (PAG). However, the larger 7T magnet could result in more severe symptomology related to the scan itself. The aim of this study was to compare the tolerability, anatomic definition and functional connectivity of the PAG to cortical areas such as insula, cingulum, prefrontal cortex (PFC), occipital area and hypothalamus using the 7T scanner in comparison of the 3T scanner in healthy young adults (HC) and subjects with chronic overlapping pain conditions (COPC).

Study Design and Outcomes
IRB approved prospective study. HC and COPC underwent on 2 different days fMRI utilizing randomly assigned order of 3T and 7T scanner. During each scan session, anatomical T1 scans (3T: 0.937 x 0.937 x 1mm voxels, 7T: 0.429 x 0.429 x 0.8mm voxels) and a set of 2 6-minute resting-state fMRI images were collected from each subject in the 3T scanner (TR=2000ms; TE=24ms; FOV=240mm, matrix size=64 x 64; slice thickness=3.5mm voxels) and the 7T scanner (TR=2200ms; TW=15.2ms; FOV=224mm, matrix size=128 x 128; slice thickness=2mm voxels). The PAG boundary was traced on the bias corrected T1 image using the subject's myelin map. The bias corrected T1 structural image was segmented into CSF, white matter and grey matter using FSL's FAST software. The tissue volumes and PAG morphology were compared across groups

Methods
Subjects were asked to score their experience of symptoms on a standardized questionnaire during and after the MRI scan based on length and severity of the experience.
The fMRI resting-state images from the two scanners were preprocessed using the AFNI software package. The images were despiked, slice-time corrected and registered to the subject's anatomy prior to tissue regression and movement regression. The residual images were smoothed using a Gaussian kernel of a FWHM of 6mm for both scan sessions. 14 target ROIs were identified in each subject's anatomical image and the mean time- series data were extracted from the voxels in the PAG mask and from the 14 Target ROIs in the subject space using MATLAB. A correlation map was created for each subject by calculating the Pearson correlation between the mean voxel level time courses from the 14 targets to the seed (PAG) ROI. Final statistical analysis was performed on the Fisher Z-transformed correlation scores.
All comparisons between scanners were conducted using Wilcoxon Signed Ranks tests, and Spearman correlations were computed to examine the relationships between connectivity and experience.

Results
6 HC (2 females, ages 24-29 yrs, median 26 yrs) and 7 COPC (6 females, ages 19-23 yrs, median 20 yrs). Volumetrics for gray matter GM ($p < 0.001$), white matter (WM) ($p < 0.001$), CSF ($p=0.17$) were different between scanners, with higher GM volume in 3T and greater WM and CSF in 7T. The size of the PAG ($p=0.146$) and intracranial volume ($p=0.635$) did not significantly differ between scanners.
Significantly stronger positive connectivity was seen in the 3T relative to the 7T scanner between the PAG and the R cingulum ($p=0.001$), L occipital ($p=0.042$), and R dlPFC $p=0.042$), with near significance for the L dlPFC ($p=0.054$). There was no significance in PAG connectivity to the other assessed areas. The vmPFC, an area of interest to us, demonstrated significant signal dropoff in the 7T, to the point that connectivity could not be reliably assessed to the PAG on this magnet. With regard to tolerability, the overall experience score was not significantly different between scanners ($p = .146$). However, subjects did report significantly greater claustrophobia in the 7T relative to the 3T ($p=.020$), with a trend toward greater dizziness ($p = .071$).
The 3T experience in the scanner correlated significant with the L-hypothalamus ($p=0.038$), with a trend toward significance in the R-hypothalamus ($p=0.053$). This association was much stronger in the COPC subjects where the correlation coefficient was actually ~1.0 for the L hypothalamus. No significant correlations were seen between experience and connectivity in the 7T.

Conclusions
3T and 7T magnets are both well tolerated for brain imaging, with perhaps more claustrophobia and dizziness experienced in the 7T scanner. 7T may define anatomy more clearly, due to the higher voxel resolution, while connectivity results differ significantly in the two scanners, and further work will determine which provides more reliable information. Some 7T artifacts may hinder connectivity analysis with certain regions. The correlation of symptom severity with hypothalamic-PAG connectivity suggests that alignment of these two structures may play a role in symptom experience. Other studies have implicated the hypothalamus and its connectivity to cortex in the symptoms of irritable bowel syndrome

Acknowledgments/Disclosures

(8) DNIC reproducibility at Visits 1 and 2 in Interstitial cystitis-Examination of the Central Autonomic Network (ICECAN)

Jeff De Los Santos[1], Mingen Feng[1], Frank Tu[2], Jeff Janata[3], Thomas Chelimsky[1], Gisela Chelimsky[1], Pippa Simpson[1]; [1] Medical college of Wisconsin,[2] Northshore,[3] Case Western University
Presented By: Jeff De Los Santos

Friday, October 19, 2018
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Objective
Diffuse Noxious Inhibitory Controls (DNIC) model is initiated when one nociceptive stimulus is inhibited by a second nociceptive stimulus administered somewhere else in the body. The reproducibility of the DNIC has not been reported.

Study Design and Outcomes
Interstitial Cystitis-Examination of the Central Autonomic Network (ICECAN), an IRB-approved, multicenter, prospective, crossover-design, randomized study based at the Medical College of Wisconsin funded by NIH-NIDDK, will evaluate 60 women with interstitial cystitis / bladder pain syndrome (IC/BPS), 60 women with myofascial pelvic pain (MPP) and 60 age-matched healthy control female subjects (HC). We examine the reproducibility of DNIC responses amongst subjects at visit 1 and 2, 4 weeks apart. There were no clinical interventions between Visit 1 and Visit 2 except from the subject’s understanding how the DNIC was performed.

Methods
DNIC was performed by immersion of the arm in a descending and ascending manner in 12ï,°C cold water, separated by 45 minutes rest. Fingers, wrist, forearm and shoulder were each immersed for 2 minutes with 5 minutes rest, and pain recorded every 15 seconds. DNIC = ascending (DNIC off) - descending (DNIC on) finger/wrist pain.

Results
18 subjects were included (7HC; 5 IC/BPS + 6 MPP. Concordance correlation coefficient between DNIC at Visit1 and Visit2 showed no significant agreement for all groups.

Conclusions
DNIC performed in HC and in females with MPP or IC/BPS at baseline and 4 weeks later does not show any agreement. Several factors could contribute to these findings: 1. There is a learning factor between the 2 visits, perhaps with the more reliable DNIC on V2 after the subjects better understand the procedures;2. This methodology of measuring DNIC is not reliable;3. The number of subjects enrolled in the study is too small to find significance. To determine which of these factors are contributing we may need to increase number of enrolled subjects and perhaps perform anther DNIC close to Visit2 and assess the agreement between the 2 visits.

Acknowledgments/Disclosures

(9) A Novel, Regenerative Treatment Approach for Patients with Chronic Pelvic Pain Syndrome Utilizing Alpha-2 Macroglobulin

Abigail Bayer-Mertens Human[1], Tayyaba Ahmed[1], Charity Hill[1], Gautam Shrikhande[1], Allyson Shrikhande[1]; [1] Pelvic Rehabilitation Medicine
Presented By: Allyson Shrikhande

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective

Patients with chronic pelvic pain syndrome (CPPS) often have debilitating symptoms and decreased functionality related to their pelvic organs and pelvic floor musculature. CPPS is underdiagnosed and treatment options are not well researched. The objective of this study is to determine the effectiveness of alpha-2 macroglobulin therapy in patients with CPPS.

Study Design and Outcomes

One promising CPPS treatment is the usage of alpha-2 macroglobulin as a protease inhibitor to mitigate inflammation and pain. Alpha-2 macroglobulin, a regenerative, non-opioid treatment option, is a plasma glycoprotein which occurs naturally in humans. This retrospective study analyzed the effectiveness of alpha-2 macroglobulin in eleven patients, seven male and four female, with CPPS. Patients were aged 31-59, and additionally had diagnoses ranging from central pain syndrome, interstitial cystitis and endometriosis. Patients were initially evaluated with a detailed history and physical exam, including internal pelvic floor evaluation. All patients had unsuccessfully attempted other treatments for their pain in the past. Patient's scores on the Visual Analogue Scale (VAS) and Functional Pelvic Pain Scale (FPPS) were collected pre-treatment and 12 weeks post-treatment. The FPPS is a scale which measures 8 categories (bladder, bowel, intercourse, walking, sleeping, working, running and lifting) to determine a patient's functionality in relation to their pelvis. The scale rates each category from 0 to 4, with 0 being normal and 4 being most debilitating. The patient can thus be given a total score from 0 to 32.

Methods

Patients all continuously underwent weekly physical therapy. Approximately 90 milliliters of the patient's blood was drawn and centrifuged with the APIC system to separate its components. The alpha-2 macroglobulin concentrate (8-10 milliliters) was thereby isolated and then injected locally under ultrasound guidance in the region of the iliococcygeus, pubococcygeus, and puborectalis muscles. Pudendal nerve hydrodissection was also performed.

Results

The mean age of the patients was 42.9. Pre-treatment, the mean VAS score was 5.18 (SD 2.48) and post-treatment the mean VAS score was 3.18 (SD 1.54); $P < .05$, 95% CI 0.16-3.84. Pre-treatment, the mean overall FPPS score was 12.36 (SD 5.80) and post-treatment, the mean overall FPPS score was 5.55 (SD 4.27); $P < .05$, 95% CI 2.29-11.35. Analysis of the subcategories within the FPPS indicated the improvement was statistically significant in the categories of bowel, intercourse, walking, sleeping, working and lifting. Pre-treatment, the mean FPPS bowel score was 1.36 (SD 0.67) and post-treatment it was 0.45 (SD 0.52); $P < .05$, 95% CI

0.37-1.45. For intercourse, the mean FPPS score pre-treatment was 2.56 (SD 1.24) and post-treatment it was 1.00 (SD 1.50); $P < .05$, 95% CI 0.18-2.93. Pre-treatment, the mean FPPS walking score was 1.88 (SD 0.83) and post-treatment it was 0.88 (SD 0.83); $P < .05$, 95% CI 0.11-1.89. For sleeping, the mean FPPS score pre-treatment was 1.67 (SD 0.71) and post-treatment it was 0.67 (SD 0.50); $P < .05$, 95% CI 0.39-1.61. Pre-treatment, the mean FPPS working score was 2.5 (SD 0.71) and post-treatment it was 1.5 (SD 0.85); $P < .05$, 95% CI . For lifting, the mean FPPS score pre-treatment was 2.25 (SD 1.16) and post-treatment it was 0.38 (SD 0.74); $P < .05$, 95% CI 0.83- 2.92.

Conclusions

This study has promising results in regards to the usage of localized alpha-2 macroglobulin as a novel, regenerative, non-opioid treatment option for patients with CPPS. This study also provides the foundation for further research into this topic, which will involve larger sample sizes and longer follow-up.

Acknowledgments/Disclosures

(10) A Novel, Non-Opioid Treatment For Endometriosis Related Symptoms Utilizing Pelvic Floor Musculature Trigger Point Injections and Peripheral Nerve Hydrodissection

Abigail Bayer-Mertens Human[1], Charity Hill[1], Tayyaba Ahmed[1], Gautam Shrikhande[1], Allyson Shrikhande[1]; [1] Pelvic Rehabilitation Medicine
Presented By: Allyson Shrikhande

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective
Endometriosis is a disorder characterized by the abnormal growth of uterine tissue outside of the uterus. Its symptoms are known to be painful and debilitating to patient functionality. Treatment options for these symptoms are not well understood despite a growing need. The objective of this study is to determine the effectiveness of pelvic floor musculature trigger point injections and peripheral nerve hydrodissection in treating endometriosis symptoms, associated pain and pelvic functionality.

Study Design and Outcomes
The participants in our study consisted of 16 female patients, aged 21-67, with endometriosis. Pre-treatment, all patients were evaluated with a detailed history and physical exam. This included an internal pelvic floor evaluation. Each patient took part in physical therapy before and throughout the treatment process, with individualized pelvic floor physical therapy programs.

Methods
Treatment consisted of ultrasound guided pelvic floor trigger point injections to the iliococcygeus, pubococcygeus, and puborectalis. The first two injections combined 1% lidocaine with dexamethasone, while the next 4 injections consisted of 1% lidocaine with traumeel. Traumeel is a homeopathic, plant derived anti-inflammatory medication. Patients concurrently underwent peripheral nerve hydrodissection performed on the pudendal nerve and the posterior femoral cutaneous nerve. Nerve hydrodissection allows the nerves to reset, decreasing hypersensitivity. These treatments were performed once a week for 6 weeks, and were all office based and ultrasound guided. Patients were evaluated using two scales to quantify their pain and functionality before treatment and 3 months after treatment; the 0âˆ'10 Visual Analogue Scale (VAS) and the Functional Pelvic Pain Scale (FPPS). The FPPS rates pelvic functionality in 8 categories: bladder, bowel, intercourse, walking, sleeping, working, running, and lifting. The patient rates each category from 0 to 4, with 0 being normal functionality, and 4 being severe debilitation. Thus, each patient can be given a total score from 0 to 32.

Results
The mean age of patients was 32.4. Pre-treatment, the mean VAS score was 6.00 (SD 2.68) and post-treatment the mean VAS score was 2.94 (SD 2.59); $P < .05$, 95% CI 1.16-4.97. The mean total FPPS score before treatment was 14.44 (SD 5.24) and post-treatment it was 9.13 (SD 5.75); $P < .05$, 95% CI 1.34-9.28. Analysis of the subcategories within the FPPS indicated the improvement was statistically significant in the categories of intercourse, sleeping, and working. In the category of intercourse the mean score before treatment was 3.07 (SD 1.14) and post-treatment it was 1.79 (SD 1.48); $P < .05$, 95% CI 0.26-2.31 . In the category of sleeping the mean

score before treatment was 2.00(SD 1.22) and post-treatment it was 0.85(SD 0.8); $P < .05$, 95% CI 0.32 -1.99. In the category of working, the mean score before treatment was 2.00 (SD 0.96) and post-treatment it was 1.14 (SD 0.77); $P < .05$, 95% CI 0.18-1.53 .

Conclusions

This study set out to determine the effectiveness of pelvic floor musculature trigger point injections and peripheral nerve hydrodissection as a treatment option for endometriosis related symptoms. Analysis suggests the treatment was effective at relieving pain related to endometriosis; it also reflected promise in improving overall pelvic functionality, particularly in relation to intercourse, working and sleeping. This study provides the foundation for future research with larger sample size and longer follow up.

Acknowledgments/Disclosures

(11) The effects of Ojeok-san on cancer-induced visceral nociception

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Presented By: Kandy Velazquez

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective
Visceral pain can develop as result of a detrimental disease such as colon cancer. Despite the adverse effects of opioid-derived drugs in the gastrointestinal system, these analgesics are still the preferred treatment for cancer pain. Thus, it is necessary that novel analgesic therapies are developed in order to treat cancer-induced visceral pain. Ojeok-san is an herbal formula consisting of seventeen herbs. This herbal formula has been shown to possess anti-inflammatory, immunoregulatory, and analgesic properties. In this study, we examined the potential beneficial effects of Ojeok-san in a preclinical model of colon cancer-induced visceral pain.

Study Design and Outcomes
Male and female wild-type C57BL/6 mice were exposed to the carcinogen, azoxymethane (AOM, 10 mg/kg) and a chemical inflammatory driver, dextran sulfate sodium (DSS, 1-2%) to promote tumorigenesis in the colorectum. Ojeok-san was given orally (2000 mg/kg) a month after carcinogen exposure to determine its influence on disease index, tumorigenesis, and somatic and visceral nociception.

Methods
Body weight loss, fecal consistency, and blood in the stool was scored weekly to determine disease activity index. Referred somatic hyperalgesia was assessed using von Frey filament (0.008, 0.02, 0.04, 0.07, 0.16, 0.4, 0.6). Colorectal visceromotor response to distension was calculated using intra-balloon pressure changes. Ascending phasic distension protocol (10, 25, 40, 65, 80 mmHg) was used to assess visceral pain-related to colon cancer.

Results
We found that AOM/DSS mice, regardless of treatment, presented similar disease activity and tumor burden. In relation to nociception, we found that exposure to AOM/DSS promoted referred somatic hyperalgesia and visceromotor response in mice. Meanwhile, 2000 mg/kg of Ojeok-san was able to mitigate mechanical hyperalgesia and visceral nociception.

Conclusions
Taken together, these data suggest that the herbal formula Ojeok-san might provide analgesia in cancer models.

Acknowledgments/Disclosures
National Center for Complementary and Integrative Health K99AT009206.

(12) Mechanisms Underlying the Comorbidity of Dysmenorrhea and Irritable Bowel Syndrome

Arielle Shlobin[1], Frank Tu[1], Kevin Hellman[2], Folabomi Oladosu[1], Ellen Garrison[1], Nicole Steiner[1], Genevieve Roth[1]; [1] NorthShore University HealthSystem,[2] University of Chicago, Pritzker School of Medicine
Presented By: Arielle Shlobin

Friday, October 19, 2018
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Objective
Dysmenorrhea is a risk factor for irritable bowel syndrome (IBS), yet the mechanisms responsible are not yet fully understood. We hypothesized that repeated episodes of menstrual pain may lead to cross-organ sensitization which could contribute to the development of IBS.

Study Design and Outcomes
In an IRB approved study, after written consent, we measured experimental bladder pain sensitivity in a cohort of women with dysmenorrhea. Women with dysmenorrhea were divided into two groups based on the outcome of our validated noninvasive bladder filling task: dysmenorrhea without bladder sensitivity (DYS) and dysmenorrhea with bladder sensitivity (DBS). Participants were then assessed for IBS symptoms using the ROME III criteria questionnaire.

Methods
Women (ages 18-45 years) with moderate to severe dysmenorrhea (>4 on 0-10 numerical rating scale; n =136) participated in our validated noninvasive bladder filling task. Participants were asked to drink 20 ounces of water (within 5 minutes) and asked to rate their bladder pain at baseline, first sensation, first urge to void, and maximum tolerance. Participants who rated their bladder pain at first urge higher than 15 on 0-100 visual analog scale (VAS) were categorized as having DBS (n=44). Participants without significant bladder pain were categorized as DYS (n=92). Participants completed questionnaires including the Rome III Criteria, PROMIS Anxiety, and Pain Catastrophizing Scale (PCS). VAS (0-100) scores for menstrual, bowel, and pelvic pain were also reported through a month of daily diaries. Fisher's exact test was used to compare the proportion of participants meeting IBS criteria between groups. Student T-tests were used to compare levels of pain, anxiety, and catastrophization between the groups. Data is represented as average Â± standard error.

Results
Forty three percent of DBS participants met Rome III criteria for IBS, compared to 18% of DYS participants (p=0.003). DBS participants reported more bowel and pelvic pain (28.6 Â± 4.1 and 26.3 Â± 3.5 respectively) than DYS participants (10.8 Â± 1.7 and 10.4 Â± 1.6 respectively; p < 0.001). DBS participants with IBS had more pain catastrophization (20.9 Â± 2.7) than participants without IBS (14.0 Â± 2.0; p=0.046). However, there was no difference in anxiety levels between DBS participants (59.5 Â± 1.4) with IBS and DBS participants without IBS (57.7 Â± 1.0; p= 0.288). There was also no difference in self-reported levels of unmedicated menstrual pain between DBS participants (74.0 Â± 2.0) and DYS participants (72.3 Â± 1.5; p=0.491).

Although overall lower levels of pain were observed with medication, DBS participants had a significantly higher menstrual pain score (51.4 Â± 3.7) than DYS participants (39.8 Â± 2.3; p=0.01), suggesting a lack of medication effectiveness.

Conclusions

The increased prevalence of IBS among women with experimental bladder pain sensitivity suggests that cross-organ sensitization in dysmenorrhea extends across all pelvic organs. The distinct combination of catastrophization and possible medication resistance in DBS implies that risk could involve a combination of cross-organ sensitization and cognitive processes. In contrast, the lack of an association with anxiety downplays the contribution of emotional mechanisms. Future studies are needed to evaluate whether interventions in women with experimental bladder sensitivity can reduce risk for IBS.

Acknowledgments/Disclosures

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(13) Development of a New Metric to Mechanistically Evaluate Menstrual Pain

Diana Kantarovich[1], Frank Tu[2], Folabomi Oladosu[2], Ellen Garrison[2], Nicole Steiner[2], Genevieve Roth[2], Kevin Hellman[3]; [1] Chicago Medical School at Rosalind Franklin University,[2] NorthShore University HealthSystem,[3] Pritzker School of Medicine, University of Chicago
Presented By: Diana Kantarovich

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective
Dysmenorrhea, defined as painful menstrual cramps, is a common disorder and results in frequent school and work absence. Spontaneous cramps are typically the primary complaint. However, all prior research has focused on static pain levels and therefore cannot adequately evaluate the dynamic nature of menstrual pain that likely reflects different contributing mechanisms. Our goal was to develop a dynamic assessment to characterize the variability and the temporal properties of real-time perceived cramping pain in these women.

Study Design and Outcomes
After obtaining IRB approval and written consent, we recorded continuous spontaneous cramping using a handheld squeeze bulb (air compression device) from dysmenorrheic women (ages 18-45 years) during their menses, off analgesics. As a control, we recorded random squeezing from healthy controls (HC) during menses. After completion of this task, participants answered self-reported questionnaires assessing menstrual pain. As an additional comparator, dysmenorrheic participants were instructed to squeeze the bulb randomly every 2-5 minutes at a second off menses visit. In this preliminary analysis, we sought to determine whether cramping pain was associated with different temporal properties.

Methods
At the beginning of each visit (menses or non-menses), dysmenorrheic participants (n=14) rated their baseline pain (0-10) and practiced using a handheld squeeze bulb that displayed their pain intensity on a computer monitor. Specifically, participants were instructed to indicate their pain by proportionally squeezing the bulb during a menstrual cramp, only squeezing the bulb when they felt pain above their baseline. Upon completion of the handheld squeeze bulb test, participants were asked to rate their cramping pain as sharp or dull using two separate 100mm visual analog scales (VAS). HC (n=3) and dysmenorrheic participants off menses (n=11) did not have pain and were asked to squeeze the bulb randomly every 2-5 minutes. The squeeze bulb measurements were recorded over an hour using a pressure transducer connected to a data acquisition system (BIOPAC, Goleta, CA). Single 15-minute time segments with the greatest amount of visually identified squeezing episodes were analyzed by a reviewer blinded to participant group and visit. The beginning of a self-reported cramp episode was defined as the first time point at which squeeze pressure increased, and the end of the cramp episode was when squeeze pressure returned to baseline. Cramping episodes were confirmed with visual inspection and adjusted when necessary. The average and standard error of the mean of cramping parameters (frequency and duration) were calculated for each group/visit and compared between groups with T-tests.

Results

Our data showed that dysmenorrheic women squeezed the pressure bulb more frequently on menses (20.0 Â± 6 episodes/15 min) compared to off menses (10.1 Â± 2; p = 0.021). Additionally, dysmenorrheic women squeezed the pressure bulb more frequently than the HC (6.7 Â± 1 episodes/15 min) when both groups were on their menses. There was a trend demonstrating an increase in the squeeze duration in patients with dysmenorrhea (26.4 Â± 11 sec) during their menses compared to those off menses (12.4 Â± 4; p = 0.081). A similar direction was observed in participants with dysmenorrhea compared to HC (12.6 Â± 7 sec) when both groups were on their menses. To explain the potential increased variability in duration, we noted that among the 14 participants with dysmenorrhea, six had long duration cramps (53.2 Â± 24 sec) and eight had short duration cramps (6.3 Â± 3; p < 0.01) during their menses visit. The self-reported questionnaires showed that participants with long duration cramps described their pain as sharper (68 Â± 5; 0-100 VAS) compared to women with short duration cramps (45 Â± 9; p < 0.01). Conversely, women with short duration cramps characterized their pain as duller (65 Â± 7) compared to those with long duration cramps (45 Â± 8; p = 0.016).

Conclusions

The preliminary results suggest that two phenotypes of cramping patterns may exist: long cramping episodes accompanied with sharp pain, and short cramping episodes accompanied with dull pain. These divergent perceptual phenotypes may be explained by the different typical descriptors associated with contribution of A and C afferent fibers, which encode for mechanoreception and ischemia respectively. Further analysis of an expanded, deeply characterized cohort could allow for development of spontaneous pain assays that predict underlying targetable menstrual cramping mechanisms.

Acknowledgments/Disclosures

Supported by NICHD 091502.

(14) Medication Use in Dysmenorrhea and Its Association with Bladder Sensitivity

Saaniya Farhan[1], Frank Tu[1], Folabomi Oladosu[1], Ellen Garrison[1], Nicole Steiner[1], Genevieve Roth[1], Kevin Hellman[2]; [1] NorthShore University HealthSystem,[2] Pritzker School of Medicine, University of Chicago
Presented By: Saaniya Farhan

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective

Cross-sectional studies have established that women with dysmenorrhea often do not effectively medicate their pain. However, objective diary evaluation of medication usage on each day of menstrual pain has not been performed. Ineffective medication use in women with dysmenorrhea (DYS) could potentially lead to the development of cross-organ sensitization, resulting in bladder pain sensitivity. We sought to determine whether women with dysmenorrhea and bladder pain sensitivity (DBS) have worse reported menstrual pain and used less medication during menses compared to women with dysmenorrhea alone.

Study Design and Outcomes

We obtained prospective diaries in a cohort of women categorized as either having DYS or DBS.

Methods

Reproductive-aged women (18-45 years) were recruited to participate in an IRB approved, HIPAA compliant study. Participants with menstrual pain (>4 on 0-10 scale) were categorized as having either DYS (n=114) or DBS (n=44) using a validated noninvasive bladder hypersensitivity task. The bladder task involved participants rating their level of bladder pain after drinking 20 ounces of water. Participants who rated first urge bladder pain higher than 15 on 0-100 visual analog scale (VAS) were categorized as having DBS. For an entire menstrual cycle, daily diaries were completed at home using the REDCap questionnaire where participants scored their daily menstrual pain on a numeric rating scale from 0 to 10 (0=no pain and 10=worst pain imaginable). Participants also reported the level of their menstrual bleeding and detailed the type, dose, and usage of analgesics. Fisher’s exact tests were used to evaluate categorical differences in medication usage between DYS and DBS. Student’s T-tests were used to evaluate group differences in menstrual pain (average Â± standard error).

Results

On the first day of menstrual bleeding, participants with DBS (4.7Â± 0.4) and participants with DYS (4.8Â± 0.3) had comparably high levels of pain (p=0.74). Despite these high levels of reported pain, both groups rarely preempted their pain by taking nonsteroidal anti-inflammatory drugs (NSAIDs) the day before menstrual onset (DBS 6.9%, DYS 13.2%). DBS participants took more acetaminophen on the second day of bleeding (14.0%) than DYS participants (5.3%; p=0.045). Conversely, DYS participants took more NSAIDs on the second day of bleeding (42.0%) than DBS participants (25.6%; p= 0.043).

Conclusions

Although pre-emptive treatment is believed to be helpful for dysmenorrhea, participants rarely preventively treated their menstrual pain despite reporting high pain levels. Although there were no differences in pain levels among participants with dysmenorrhea with bladder sensitivity and participants without bladder sensitivity, there was a difference in medication usage. It is possible that NSAIDs may lead to reduced inflammation and cross-organ sensitization women with dysmenorrhea. Further studies are needed to clarify whether improved pharmaceutical management strategies should be implemented to improve levels of pain during menses and bladder hypersensitivity.

Acknowledgments/Disclosures
This research was supported by NIDDK, DK100368.

(15) The interplay between heart rate variability and conditioned pain modulation in dysmenorrhea.

Folabomi Oladosu[1], Frank Tu[1], Paula Ham[1], Laura Kochlefl[1], Ellen Garrison[1], Nicole Steiner[1], Genevieve Roth[1], Kevin Hellman[2]; [1] NorthShore University HealthSystem,[2] University of Chicago
Presented By: Folabomi Oladosu

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Objective

Dysmenorrhea, also known as menstrual pain, affects over 50% of reproductive age women and is a leading risk factor for developing chronic pelvic pain. However, the mechanisms underlying menstrual pain and its frequent transition to chronic pelvic pain are incompletely understood. Two distinct characteristics of chronic pain patients are dysfunctional autonomic regulation and endogenous pain modulation. We hypothesize that women with dysmenorrhea have impaired autonomic regulation, which could then promote uterine ischemia. Prior clinical studies have also demonstrated vagal-mediated autonomic activity can facilitate descending modulation of pain. We therefore also sought to determine if these findings extend to dysmenorrhea sufferers. To test these hypotheses, we measured heart rate variability and conditioned pain modulation in women with and without menstrual pain.

Study Design and Outcomes

This is a cross-sectional study, designed the effect of dysmenorrhea on heart rate variability, conditioned pain modulation, and the possible interaction of the two dependent variables.

Methods

Women with dysmenorrhea (n= 94) and healthy controls (n=31) were recruited to participate in an IRB approved study during their luteal phase. Women were instrumented with electrocardiograph electrodes to measure heart rate variability (HRV). Parasympathetic tone was evaluated by the log10 of root mean square of the successive differences (RMSSD) in heart beat intervals using HRVAS. Conditioned pain modulation was assessed by change in the left trapezius pain pressure thresholds (PPTs) from baseline at 0, 5, and 10 minutes after conditioned stimulus application. The conditioned stimulus was right hand immersion in a circulating 0Â°C ice bath for 20 seconds. Group differences in heart rate and RMSSD at baseline and between each trial were compared using paired T-test and ANOVA in GraphPad Prism.

Results

Throughout the conditioned pain task, women with dysmenorrhea had a higher heart rate (79.3 Â± 0.9 beats per minute) than healthy controls (72.5 Â± 1.6 beats per minute; $p < 0.001$). Conversely, dysmenorrheic women had lower RMSSD (1.61 Â± 0.02) than healthy controls (1.69Â± 0.03; $p=0.02$). Increased heart rate and reduced RMSSD in dysmenorrheic participants suggest reduced vagally-mediated parasympathetic activity. Both healthy controls (7.5 Â± 2.4 Newtons above baseline) and women with dysmenorrhea (4.9 Â± 0.5 Newtons above baseline) had higher PPTs immediately after the conditioned stimulus (p’s < 0.05). However, there was not a robust difference in conditioned pain modulation response between women with dysmenorrhea and healthy controls at any of the time points (p's > 0.05).

Conclusions

We found that women with dysmenorrhea have increased heart rate and reduced RMSSD, indicative of diminished parasympathetic activity. Since parasympathetic activity normally promotes uterine perfusion, its dysfunction could contribute to dysmenorrhea. Nevertheless, women with dysmenorrhea still displayed inhibitory conditioned pain modulation almost comparable to healthy controls. These results suggest that endogenous pain modulation as measured by conditioned pain modulation does not mediate the effects of autonomic dysfunction in women with dysmenorrhea.

Acknowledgments/Disclosures

This research was supported by NIDDK DK100368, and NorthShore University Health System.

(16) Physical Therapy and the Effects of Exercise Intervention on Common Musculoskeletal Impairments in the Postparttum Population

Casey Smith[1], Ashleigh Scott[1]; [1] Women's Health Physical Therapy and Men's Pelvic Health
Presented By: Cora Huitt

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective
Physical therapy and its role in the care of the postpartum patient is an emerging concept which has been adopted by countries around the globe. Recent ACOG Committee Opinion published in May 2018 redefining postpartum care to include physical and musculoskeletal recovery from birth. However, the assessment and treatment of musculoskeletal impairments which accompany pregnancy and birth that manifest in the postpartum period are lacking in the literature. Exercise, therapeutic modalities, patient education, and ergonomic modifications to activities of daily living are some of the common interventions implemented in physical therapy which would benefit from further investigation in regards to the effects of musculoskeletal function and recovery during the postpartum period. The purpose of this study is to assess functional limitations pre and post specified physical therapy and musculoskeletal interventions which focus on common impairments and diagnosis of the postpartum population including, but not limited to, diastasis recti, pelvic floor dysfunction, and pain. In addition, from the intake survey and evaluation, we would learn what were the most common diagnoses which subjects presented with in the postpartum period.

Study Design and Outcomes
Quasi-experimental pre-test post-test design was performed.

Methods
Twenty three subjects ranging from four weeks to eight years postpartum, ages 27 to 40 who voluntarily presented to skilled PT were used in this study. Subjects filled out a questionnaire which subjectively identified common functional limitations in the postpartum period. The physical therapist assigned to the case also filled out an intake form with diagnosis found or reported during the initial physical therapy evaluation, along with how many minutes per week the subject was exercising, if they were breastfeeding, and if they were currently pregnant. Subjects were given the functional questionnaire prior to intervention and at discharge or at subsequent follow-up. Intervention was standardized for each subject to the PostPartum Strong Program, which is a generalized program that focuses on strengthening the deep intrinsic trunk synergy including the diaphragm, transverses abdominis, pelvic floor and deep back extensors in isolated function. Subjects were also given extensive education on posture, body mechanics, and modifications to activities of daily living which supplemented the exercise interventions based on individual impairments and findings at initial evaluation. Subjects were were monitored through their plan of care with recommended attendance to therapy from as frequently as two times per week to two times a month, depending on the severity of impairments at evaluation, adherence to exercise program, and attendance to therapy sessions.

Results
A multiple t-test grouped analysis was performed for 23 patients; p-value < 0.05. Dysfunction level was subjectively reported on a scale from 0-10, with 0 being the least impaired, and 10 being severely impaired. There is a nonsignificant downward trend of all variables between pre and post, with the most change shown in the standing variable of prolonged standing pre and post intervention ($p = 0.069$). Diagnoses were also analyzed between subjects which showed the most common diagnoses being diastasis recti, back pain, postural dysfunction, sacroiliac joint dysfunction, and stress urinary incontinence.

Conclusions
With the focus of this study on conservative and exercise based treatment of the postpartum patient, improvements were seen in common functional and daily tasks with an exercise dominant physical therapy intervention program. Significant changes in the functional variables polled could be seen as subject pool increases, along with the effect of an exercise and education based intervention program and its effect on the common musculoskeletal impairments which are common during the postpartum period. This study would benefit from an increased subject pool to solidify if significant changes could be seen in functional activities. Therefore, as suggested by the ACOG Committee Report and Healthy People 2020 recommended by the US Federal Government, evaluation for musculoskeletal impairments and education in the postpartum period, along treatment should be administered after pregnancy and birth.

Acknowledgments/Disclosures
All data collection was performed at Women's Health Physical Therapy and Men's Pelvic Health in Richmond, Virginia. Statistical analysis was performed by Molly Creighton, Biostatistician.

(17) Musculoskeletal Women's health education in physiatry: a mismatch in residency education and clinical practice expectations

Stacey Bennis[1], Monica Rho[2]; [1] McGaw Medical Center of Northwestern University / Shirley Ryan AbilityLab,[2] Shirley Ryan AbilityLab / Northwestern University Feinberg School of Medicine
Presented By: Stacey Bennis

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective
To identify the prevalence of formalized musculoskeletal women's health curricula and the prevalence of women's health physiatrists at ACGME-accredited Physical Medicine & Rehabilitation (PM&R) residency programs.

Study Design and Outcomes
Design: Cross-sectional survey design

Setting: Computer-based

Main Outcome Measurements: The primary outcome measure was the prevalence of Women's health musculoskeletal curricula at ACGME-accredited PM&R residency programs in the United States. The secondary outcome was the prevalence of women's health physiatrists at these programs.

Methods
A single, multiple choice, computer-generated RedCAP survey with branching logic was sent to all ACGME-accredited PM&R residency programs in the United States (N=86).

Results
86 ACGME-accredited PM&R residency programs were contacted with 55 completed responses (64% response rate; 38 program directors, 17 program coordinators). Only 6 programs (11%) reported the presence of a formal WH curriculum at their residency program. In contrast, 25 programs (45%) reported having WH physiatrists at their institutions, and 36 programs (65%) reported that general physiatrists were providing WH-related care.

Conclusions
The study findings identify a mismatch between the prevalence of musculoskeletal women's health residency education (11% of programs) and the prevalence of physiatrists providing musculoskeletal women's health (66% of programs). With appropriate education, physiatrists are ideally suited to be at the front line for musculoskeletal women's health care. Based on these findings, it is recommended that residency programs consider adding formalized musculoskeletal women's health training into their curricula. These findings should also prompt the ACGME and the American Board of Physical Medicine and Rehabilitation to consider including topics pertinent to Women's musculoskeletal health into the program accreditation requirements and the board certification exam, respectively.

Acknowledgments/Disclosures
We would like to acknowledge all of the PM&R residency program directors and coordinators who took time to respond to this survey.

We have no disclosures or conflicts of interest to report.

(18) Joint hypermobility among female patients presenting with chronic myofascial pelvic pain

Julie Hastings[1], Jeri Forster[1], Kathryn Witzeman[2]; [1] University of Colorado School of Medicine,[2] Denver Health Medical Center, University of Colorado School of Medicine
Presented By: Julie Hastings

Friday, October 19, 2018
Presentation Time: 3:15 PM - 3:35 PM

Objective
The primary aim of this study was to estimate the period prevalence of generalized hypermobility spectrum disorder (G-HSD) among female patients with persistent myofascial pelvic pain. The secondary aim was to examine the association between G-HSD and other frequent pain-associated gynecologic complaints as compared to patients with chronic myofascial pelvic pain without joint hypermobility disorders.

Study Design and Outcomes
Period prevalence was examined initially, then a retrospective case-control study design was utilized to evaluate associations. Primary outcomes evaluated included Beighton Score, dyspareunia, low back pain and provoked vestibulodynia. Secondary outcomes included hip pain, stress urinary incontinence, irritable bowel syndrome, and prior diagnosis of fibromyalgia.

Methods
Data were collected from patient records for women aged 18-80 who presented to the Denver Health Women's Integrative Pelvic Health Program with complaint of female pelvic pain who were diagnosed with myofascial pelvic pain during a 1-year period from July 1, 2016 to July 1, 2017. Patients were identified using ICD-10 codes and then all data was confirmed via thorough chart review of clinical documentation to ensure accuracy of diagnoses. Characteristics were compared using descriptive statistics. Logistic regression was used to assess the association between G-HSD and co-morbid conditions, controlling for potential confounders.

Results
318 women with persistent myofascial pelvic pain were included in our study cohort after chart review confirmation. Twenty-four percent (N=77; 95% CI: 19.6, 29.4) of these patients also met criteria for G-HSD.
After adjusting for confounders, the odds in favor of having G-HSD was 3.55 higher (95% CI: 1.50, 8.40) (p=0.004) in females with dyspareunia; 7.46 higher (95% CI: 2.41, 23.1) (p=0.0005) with low back pain; 3.90 higher (95% CI: 1.30, 11.8) (p=0.02) with stress urinary incontinence; 4.72 higher (95% CI: 2.00, 11.2) (p=0.0004) with irritable bowel syndrome; and 3.12 higher (95% CI: 1.36, 7.13) (p=0.007) with hip pain. There was no association identified between provoked vestibulodynia or fibromyalgia with G-HSD.

Conclusions
This study found a much higher rate (24%) of women with chronic myofascial pelvic pain who also met criteria for G-HSD compared to prevalence estimates joint hypermobility syndrome (3%) in the general population. The presence of G-HSD was associated with a higher odds ratio

[likelihood] of women also experiencing dyspareunia, low back pain, hip pain, stress urinary incontinence, and irritable bowel syndrome but not provoked vestibulodynia or prior diagnosis of fibromyalgia. The findings of this study will contribute to the development of common data elements (CDEs) to be used for research into pelvic disorders and the hypermobility spectrum disorders.

Acknowledgments/Disclosures
None

(19) Comparative study of vaginal danazol vs diphereline (a synthetic GnRH agonist) in the control of bleeding during hysteroscopic myomectomy in women with abnormal uterine bleeding: a randomized controlled clinical trial

Manizheh Sayyah-Mello[1], Simin Taghavi[1], Elaheh Ouladsahebmadarek[1], Mehri Jafari Shobeiri[1];
[1] Women's Reproductive Health Research Centre, Tabriz University of Medical Sciences, Tabriz, Iran
Presented By: Sanam Bidadi

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective
To compare the usefulness of vaginal danazol and diphereline in the management of intra-operative bleeding during hysteroscopy.

Study Design and Outcomes
Randomized controlled clinical trial. One hundred and ninety participants of reproductive age were enrolled for operative hysteroscopy. Thirty women were excluded from the study.

Methods
One hundred and sixty participants with submucous myomas were allocated at random to receive either vaginal danazol (200mg BID, 30 days before surgery) or intramuscular diphereline (twice with a 28-day interval).

Results
Overall, 145 patients completed the study. In the danazol group, 78.1% of patients experienced no intra-operative uterine bleeding, and 21.9% experienced mild bleeding. In the diphereline group, 19.4% of patients experienced no intra-operative uterine bleeding, but mild, moderate and severe bleeding was observed in 31.9%, 45.8% and 2.8% of patients, respectively. The difference between the groups was significant ($p < 0.001$). A clear visual field was reported more frequently in the danazol group compared with the diphereline group (98.6% vs 29.2%, $p < 0.001$). The mean operative time was 10.9 min and 10.6 min in the danazol and diphereline groups, respectively ($p=0.79$). The mean volume of infused media was 2.0L in both groups ($p=0.99$). The success rate was 100% for both groups with no intra-operative complications.

Conclusions
Both vaginal danazol and diphereline were effective in controlling uterine bleeding during operative hysteroscopy. However, vaginal danazol provided a clearer visual field.

Acknowledgments/Disclosures

(20) In vitro antiproliferative activity study of new estrogen-substituted ferrocenecarboxylate derivative on human endometrial cell lines

Natasha Santos[1], Jose Carmona[2], Enrique Melendez[2], Idhaliz Flores[3]; [1] Damas Hospital,[2] University of Puerto Rico at Mayaguez,[3] Ponce Heath Sciences University-Ponce Research Institute
Presented By: Natasha Santos

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective
To test estrogen-substituted ferrocene-carboxylate derivatives as a drug delivery system by means of the estrogen receptor and to quantitatively assess the cytotoxic profile of this compound on endometriotic and endometrial cells.

Study Design and Outcomes
Endometriosis is an incurable condition characterized by endometrial glands and stromal cells outside the uterus that respond to hormonal stimuli and undergoes the same physiologic changes as endometrial tissue. The limited available treatment options mainly focus on improving menses-related symptoms, such as chronic pelvic pain and menorrhagia, by targeting the hormonal axis of the menstrual cycle rather than its eradication. Ferrocenecarboxylate derivatives have successfully shown to have the anti-proliferative capacity on different estrogen receptor (ER)-rich cancer cell lines, such as breast cancer. The aim of our study is to test estrogen-substituted ferrocenecarboxylate derivatives as a prospect drug delivery system for endometriosis by means of the estrogen receptor. We hypothesize that a more specific cytotoxic activity will be observed against endometriotic cells compared to normal endometrial cells due to the differential expression of ERs on endometriotic lesions. A specific estrogen-substituted ester derivative, 3-estradiol ferrocenecarboxylate (3-Fc-E2), has been cytotoxically examined in vitro by means of a colorimetric assay and obtaining the EC50 of the compound.

Methods
A specific estrogen-substituted ester derivative, 3-estradiol ferrocenecarboxylate (3-Fc-E2), has been synthesized and cytotoxically examined in vitro with endometriotic epithelial cells (12Z), endometrial stromal cells (HESC), and endometrial epithelial cells (EEC) by means of the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) colorimetric assay. In this assay, a serial dilution of the drug was performed which, along with the optical density and sigmoidal fitting of the data, the EC50 of the compound on each cell type was obtained.

Results
EC50 of ferrocenecarboxylate derivative was obtained for each cell line: 2.5ÂµM for 12Z; 30ÂµM for EEC; and undetermined for HESC. A more pronounced anti-proliferative activity was observed against 12Z endometriotic cells in comparison to the endometrial cell lines. A sigmoidal fitting for HESC cells treated with the drug was not accomplished, for an anti-proliferative activity was not observed.

Conclusions
As hypothesized, preliminary data a more prominent anti-proliferative activity against 12Z (endometriotic cells) than the endometrial cell line HESC, suggesting 3-Fc-E2 can be effectively transported into the cell to exert its cytotoxic effect. These data encourage further studies with 3-Fc-E2, aiming for the future development of an effective drug delivery system as an eradication therapy option for endometriosis. Meanwhile, control studies with ferrocene carboxylate are being conducted, as well as the determination of estrogen receptor expression in endometriotic and endometrial cell lines.

Acknowledgments/Disclosures
PHSU - Ponce Research Institute (PRI).
Endometriosis Laboratory Peers.
These studies were funded in part by the Puerto Rico Science Research and Technology Trust and the UPR Ponce PRISE Program (PRISE) (NIH Grant #R25GM096955).

(21) Trigger Point Release Treatment in Men with Pudental Neuralgia and Pelvic Pain

Alime BUYUK GONEN[1]; [1] Akdeniz University Faculty of Health Sciences Physiotherapy and Rehabilitation Department
Presented By: Alime BUYUK GONEN

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective

To assess effectiveness of trigger point release therapy (internal and externally) in male patients with pudendal neuralgia (PN) and chronic pelvic pain (CPP). This study aimed to evaluate the effect of myofascial trigger point release therapy (TPRT) in men with PN and CPP.

Study Design and Outcomes

This research is a prospective study in 10 men who have pudendal neuralgia and chronic pelvic pain.
Patients reported improvement pain VAS scores and pelvic floor muscle tenderness scores after therapy.
Pain VAS scores significantly decreased from 7,3Â±1,15 points to 2,30Â±0,82 points ($p < 0.005$) after TPRT. Obturator internus muscle tenderness score also significantly decreased ($p < 0,002$). National Institutes of Health-Chronic Pain Symptom Index (NIH-CPSI) scores significantly improved ($p < 0,005$).

Methods

Patients with orchialgia and any other distribution pattern of pelvic pain were equally considered for therapy. There were 10 men mean age 31,8 years treated with the myofascial trigger point assessment release therapy. Symptoms were chronic, intermittent pain, lower urinary symptoms and sexual dysfunction. They were assessed by a team comprising a urologist and physiotherapist. Prior to treatment and at each follow up visit patients completed National Institutes of Health-Chronic Pain Symptom Index and pain VAS scores. Patients were examined in the lithotomy position by the physiotherapist to evaluate external and internal pelvic floor muscles, and myofascial trigger points (TrPs) represents the most common location of TrPs in men with pelvic pain. The physiotherapist applied treatment with the patient in the prone and lateral positions with a cushion under the abdomen. The right hand was used to examine and work the left side of the pelvic floor and the left hand was used to work the right side of the pelvic floor. TPRT contains deep tissue mobilization, including stripping, strumming, skin rolling and effleurage. Individual muscle groups were palpated, myofascial TrPs were identified and pressure was held for about 60 seconds to release. Patients received 8 sessions (an hour for each session) in 4 weeks with trigger point release therapy tecnique (TPRT) was practiced with internal and externally by the same physiotherapist. Travell and Simons provided the first manual on trigger points, and myofascial pain and dysfunction. Others have noted the advantages of working with somatic tissue to relieve tension myalgia and Weiss recently reported the successful amelioration of symptoms in patients with interstitial cystitis using myofascial release. Men in pudental neuralgia received 8 session during one month twice a week. Symptoms were assessed with pain score (VAS), obturator internus muscle tenderness score (0-4) and National

Institutes of Health-CP Symptom Index (NIH-CPSI) before and after trigger point release treatment.

Results
Global response assessments were improved, considered clinical successes scores of pain, obturator internus muscle tenderness and NIH-CPSI quessionnare after 8 TPRT therapy sessions. Scores of pain VAS and obturator internus muscle tenderness significantly decreased and NIH-CPSI scores also significantly improved after TPRT ($p < 0.005$).

Conclusions
This study analysis indicates that TPRT represents an effective therapeutic approach for the management of pudental neuralgia and chronic pelvic pain in men, providing pelvic floor muscle health and pain symptom relief.

Acknowledgments/Disclosures
No financial support.

1. Anderson, R. U., Wise, D., Sawyer, T., & Chan, C. (2005). Integration of myofascial trigger point release and paradoxical relaxation training treatment of chronic pelvic pain in men. The Journal of urology, 174(1), 155-160.

(22) Dorsal Root Ganglion Stimulation for Chronic Pelvic Pain: A Case Series (3-18 Months Post Implant)

Kiran V. Patel, MD[1]; [1] Spine & Pain Instiute of New York; Zucker School of Medicine at Hofstra; Lenox Hill Hospital
Presented By: Kiran V. Patel, MD

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective

Historically, neuropathic pelvic pain has been a difficult condition to treat partially due to the complex nature of the pelvic neuroanatomy. The pelvis receives the majority of its innervation from the sacral plexus, with contributions from the lower lumbar nerve roots, and autonomic fibers from the hypogastric plexus. The hypogastric plexus is the main autonomic control center of the pelvis while somatic innervation is supplied by fibers traveling in the pudendal nerve which originates from the sacral plexus (S2-S4). The thoracolumbar and sacral DRG cells house the sensory neurons responsible for transmitting painful sensations from the pelvis to the brain.

The dorsal root ganglion (DRG) houses the primary sensory neurons that transmit pain from the periphery to the CNS. As the dorsal sensory root exits the neural foramina, it forms the DRG. The DRG is a collection of bipolar cell bodies of sensory afferent nerves surrounded by glial cells and the axons of the DRG sensory cells that form the primary afferent sensory nerve. The DRG is an intraspinal structure and exists within the subdural or epidural space.

During chronic pain states, the DRG exhibits unique pathophysiologic changes, making it a good target for spinal cord stimulation. Following injury or inflammation to a peripheral nerve, the DRG shows a proliferation of the surrounding glial cells. This results in thickened layers encircling the DRG somata. Production of cytokines by these glial cells has been identified as an important contributor to the chronic pain that follows peripheral nerve injury. Pathology at the primary sensory afferent nerve results in increased neuronal discharge and subsequent increased release of excitatory amino acids, ATP, nitric oxide and neural peptides. This activates the surrounding glia, induces release of pro-inflammatory cytokines, stimulates neurons and results in an increased membrane excitability.

DRG stimulation is an established targeted therapy used to treat a variety of chronic neuropathic pain conditions. DRG therapy has been FDA approved for the indications of CRPS Type 1 (Reflex Sympathetic Dystrophy) and CRPS Type 2 (Causalgia) since 2015. In vitro studies examining the mechanism of DRG therapy indicate that DRG stimulation may increase filtering at the T-Junction of primary sensory neurons. In such studies, field stimulation of the dorsal root ganglia demonstrated subsequent reductions in membrane excitability and the ability to transduce painful signals. Clinically, this is manifested by reductions in pain.

DRG lead placements at L1 and S2 allows for targeted coverage of pelvic pain and referred pain commonly felt into the lower back and groin areas. Previous attempts to stimulate the pelvis through peripheral nerves and traditional spinal cord stimulation have been susceptible to inconsistent outcomes, technical failure and unwanted paresthesia. The finite lead placement, paresthesia free nature, and defined coverage of DRG therapy allows for consistent results across many etiologies of pelvic pain.

Study Design and Outcomes

We report a case series of 15 patients with various etiologies of chronic pelvic pain (Interstitial Cystitis, Hunner's ulcers, Pudendal Neuralgia, Vulvodynia, Lichen Sclerosus, Coccydynia). Percutaneous DRG leads were placed at L1 and S2. Following a 7 day trial of a temporary device, all patients elected to proceed with permanent implantation of bilateral L1 and S2 leads.

Methods

NRS and modified ODI scores were followed pre-trial, trial, 3, 6, 9, 12 and 18 months post implant (where applicable). The modified ODI categories included pain intensity, personal care, walking, sitting, standing, sleep, sexual activity, social life, and travel.

Results

At 3 months post implant, all 15 patients reported an improvement from crippled (modified ODI 60-80) to minimal disability (modified ODI 0-20) and a 70-90% decrease in NRS. All patients reported improving symptoms and less interference of pain with activities of daily living. As patients were followed to 6, 9, 12, and 18 months respectively the decrease in modified ODI and NRS remained consistent or displayed further improvement. 13 out of 15 patients, were able to stop taking opioid medication following the initiation of DRG therapy for pelvic pain.

Conclusions

DRG spinal cord stimulation is an FDA indicated therapy for the treatment of Reflex Sympathetic Dystrophy and Causalgia. DRG therapy may provide a reproducible, specific and effective treatment for patients with chronic pelvic pain syndromes that have previously failed conservative therapies. The post implant data in this case series suggests that DRG therapy may provide sustainable pain relief and functional improvement for those suffering from various etiologies of pelvic pain. Based on these promising results, a prospective clinical study examining the benefit of DRG therapy in intractable pelvic pain is warranted.

Acknowledgments/Disclosures

Clinical Educator and Consultant for Abbott Neuromodulation

(23) A Regenerative Approach to Resolution of Pudendal Nerve as a component of Chronic Pelvic Pain

Barry Jarnagin[1]; [1] Center for Pelvic Heatlh
Presented By: Barry Jarnagin, MD

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective
This study was driven by the hypothesis that a novel amniotic tissue product will resolve pain in patients with Chronic Pelvic Pain with a pudendal neuralgia component.

Study Design and Outcomes
64 women with a pudendal neuralgia component with Chronic Pelvic Pain were treated with an amniotic tissue product resulting in a dramatic improvement in their pain and discomfort.
Outcomes:
90% of the 64 women treated resulted in moderate (23%) to complete (67%) pain relief.

Methods
All patients determined to have pudendal neuralgia as a component of their Chronic Pelvic Pain were included in this study.
It was a retrospective study reviewing the outcomes of patients treated with allograft to the Pudendal nerve.

Results
67% of the patients reported complete or near complete resolution of their Chronic Pelvic Pain with an additional 23% reporting moderate relief and 9% reported no relief.

Conclusions
Our findings demonstrate a novel, effective, and easy way to administer therapy for patients suffering with Chronic Pelvic Pain with a pudendal neuralgia component that was free of serious adverse events.

Acknowledgments/Disclosures
Pathways healthcare’s research support

(24) A Regenerative Approach to Resolution of Pudendal Neuralgia in Chronic Pelvic Pain

Sara Jarnagin[1], Thomas Tulenko, PhD[2], Barry Jarnagin, M.D.[3], Krystal Hunter[4]; [1] Lincoln Memorial University, Harrogate, TN,[2] Thomas Jefferson University College of Medicine,[3] Center for Pelvic Health, Franklin Tennessee,[4] Cooper University Hospital, Camden, N.J.
Presented By: Barry Jarnagin, M.D.

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective
This study was driven by the hypothesis that a novel amniotic tissue product will resolve pain in patients with Chronic Pelvic Pain with a pudendal neuralgia component.

Study Design and Outcomes
64 women with a pudendal neuralgia component with Chronic Pelvic Pain were treated with an FDA regulated amniotic tissue product resulting in a dramatic improvement in their pain and discomfort.

90% of the 64 women treated resulted in moderate (23%) to complete (67%) pain relief.

Methods
All patients determined to have pudendal neuralgia as a component of their Chronic Pelvic Pain were included in this study.

Results
67% of the patients reported complete resolution of their Chronic Pelvic Pain with an additional 23% reporting moderate relief and 9% reported no relief.

Conclusions
Our findings demonstrate a novel, effective, and easy way to administer therapy for patients suffering with Chronic Pelvic Pain with a pudendal neuralgia component that was free of serious adverse events.

Acknowledgments/Disclosures
None

(25) The Lumbosacral Spine, a Source for Unusual Pelvic and Penile Pain in Men

Irwin Goldstein[1], Eric Biewenga[2], Sue Goldstein[0], Barry Komisaruk[3], Choll Kim[4]; [1] Alvarado Hospital,[2] San Diego Sexual Medicine, ,[3] Rutgers University,[4] Spine Institute of San Diego
Presented By: Irwin Goldstein

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective
The source of unusual penile pain in men can be elusive. Patients often undergo numerous exams, tests, and interventions without sustained success. In 2012 pathology of the sacral spine was identified as the source of hyperfunctional sexual dysfunction in women.

Study Design and Outcomes
We hypothesized that men with unusual penile pain may have lumbosacral spine disease causing radiculitis of sacral spinal nerve root (R-SSNR) as the source of their symptoms. The main outcome measure was efficacy as assessed by sexual quality of life and safety as determined by operative or post-operative complications.

Methods
Men presenting with unusual penile pain underwent diagnostic neurogenital testing (NGT) to include sacral dermatome, genital biothesiometry, and bulbocavernosus reflex latency testing. If NGT was abnormal, then lumbar/sacral MRI studies assessed for a treatable spine abnormality (TSA). If a TSA was found a targeted transforaminal epidural spinal injection (TFESI) was performed to ascertain penile symptom reduction. In appropriate patients, minimally-invasive, computer-navigated, spine surgery was performed.

Results
Over a 30 month period 16 men presented with chronic, persistent penile, perineal, prostatic, scrotal, urethral, bladder, and/or ejaculatory pain. Five men (mean age 31 years, range 17-46) completed the protocol, were diagnosed with radiculitis of a SSNR, underwent spine surgery and at this time have > 4 month follow-up. Pathologies were lumbar annular tear (1), lumbar annular tear with herniated nucleus proposes (2), and sacral Tarlov cyst (2). Quality of life regarding sexual function has already been achieved in all five patients (100%). There were no surgical complications. This same protocol has been used to treat other sexual dysfunctions in both men and women with similar results.

Conclusions
This is the first study, to our knowledge, showing successful surgical treatment of unusual penile pain related to various cauda equina based lumbar pathologies causing R-SSNR. Using a multi-dimensional management paradigm has allowed men with neurogenic sexual dysfunctions to be cured by minimally-invasive spinal surgery.

Acknowledgments/Disclosures

(26) Postoperative Pain and Surgical Outcomes Following Single Site vs Multiport Robotic Laparoscopy for Total Hysterectomy

Karen Wiercinski, RN[1], Aileen Caceres, MD[1], Cynthia Buffington, PhD[1]; [1] Florida Hospital Celebration Health
Presented By: Karen Wiercinski, BSN, RN

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective
Single site surgery is growing in popularity due to the procedure's cosmetic benefits. In a previous study, we found that single-site robotic surgery is a safe and efficacious procedure for the surgical treatment of various gynecologic indications, including those requiring a total hysterectomy. The objective of the present study was to compare postoperative pain and surgical outcomes of robotic single site hysterectomy (RSSH) versus robotic multiport hysterectomy (RMPH).

Study Design and Outcomes
The study was a retrospective analysis of the outcomes of 21 women who underwent RSSH and 20 who had RMPH between June 2016 and December 2017. Surgical outcomes included total operative time, estimated blood loss (EBL), intraoperative and postoperative complications, length of hospital stay (LOS), and postoperative pain. Pain scores (visual analog scale 1-10) were determined upon admission to PACU, at PACU discharge, and at 6, 12, and 24 hours postoperatively. Statistical analyses included student's t-tests and linear regression (simple, multiple) with significance at a probability < 0.05.

Methods
Both surgical approaches utilized the da Vinci robotic system for performance of total hysterectomy. The single-site approach utilized the latest Xi single-site da Vinci robotic platform. All surgeries were performed by the same surgeon at a community teaching hospital.

Results
RSSH and RMPH patients were similar (p>0.05=NS) with regard to age (48 and 44 years, respectively) and body size (BMI = 29.3 and 28.7). Operative times did not differ significantly between RSSH and RMPH (77.0 vs. 85.4 minutes, respectively), and the average length of stay for both surgeries was less than 24 hours. Intraoperatively, there were no complications or conversions with either procedure although postoperative complications were somewhat higher for RMPH (n=3) versus RSSH (n=1). Average estimated blood loss (EBL) during surgery did not significantly differ between the approaches, i.e. RSSH = 77.0 cc, RMPH = 85.42 cc). Average pain scores were relatively low (1.2-4.0) at all postoperative time periods and did not significantly (p>0.05) differ between the surgical approaches. Neither age, BMI, total operative time, nor EBL had a significant effect on pain intensity.

Conclusions
Our results show no differences in postoperative pain nor surgical outcomes between conventional multiport robotic and single site hysterectomy. Single site robotic surgery may be a viable option for women requiring a hysterectomy who have cosmetic concerns.

Acknowledgments/Disclosures
No Disclosures

(27) Postoperative Pain Score and Narcotic Use in Robotic Single Site Versus Multiport Hysterectomy

Karen Wiercinski, RN[1], Aileen Caceres, MD[1], Cynthia Buffington, PhD[1]; [1] Florida Hospital Celebration Health
Presented By: Karen Wiercinski, BSN, RN

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective

As a consequence of the high incidence of opioid addiction in the US, clinicians are encouraged to reduce patient use of opioids following surgery and, when possible, to replace with alterative analgesics. Pain intensity and the need for analgesics post-surgery may depend upon the surgical approach. The primary objective of the present study was to evaluate postoperative pain and analgesic use following total hysterectomy performed robotic or via traditional laparoscopy.

Study Design and Outcomes

The study is a retrospective analysis of the surgical records of 149 women whose surgery was performed at a community teaching hospital. All patients had a total hysterectomy for benign disease with either a robotic assisted (n=97) or traditional laparoscopic (n=52) approach. Primary study outcomes included maximal pain, pain intensities over 24 hours, and use of analgesics (opioids, NSAIDs, acetaminophen, none). Other outcomes were patient demographics, surgical indications, operative time, estimated blood loss (EBL), complications (physical, malaise), and length of hospital stay (LOS).

Methods

Pain intensities were measured using the Visual Analog Scale with scores of 0 to 10 representing pain intensities from least to greatest. Analgesic use was expressed as the % of patients using opioids or non-opioid medications 24 hours postoperatively for each surgical arm. Statistical analyses for determination of significance between the surgical approaches included student t-tests for continuous variables and Chi Square analyses for categorical data. Significance is expressed as a probability â‰¤ 0.05.

Results

Maximal postoperative pain did not significantly differ between patients having a robotic versus traditional laparoscopic procedure, i.e. 7.19 vs. 7.16, respectively. Overall postoperative pain, however, was reduced for patients having robotic surgery as evidenced by a significantly lower need for opioids (chi sq $p < 0.01$). Following robotic surgery 28.8% of patients requested opioids for pain in comparison to 50% of those having a traditional laparoscopic procedure. NSAID use was similar for robotic and laparoscopic patients (31.9% vs. 36.5%, respectively) and the use of acetaminophen by the robotic patients was higher (27.8% vs. 9.6%). Among the robotic patients, 11.3% required no pain medication in comparison to 3.8% of patients following the traditional laparoscopic approach. Robotic vs. traditional laparoscopy was associated with longer operative time (140 vs 81 min, $p < 0.01$) but significantly less blood loss (55 vs 108 cc, $p < 0.01$), postoperative physical complications (4.4% vs 10%), and a trend ($p=0.10$) toward a shorter length of stay (34 vs. 47 hours

Conclusions
In a retrospective analysis, a robotic assisted approach to total hysterectomy, as compared to a traditional laparoscopic approach, reduced by nearly half the number of patients requiring opioids for pain postoperatively and increased the percentage of patients using non-narcotics or no pain medications.

Acknowledgments/Disclosures
No Disclosures

(28) Use of Kegel Exercises in a Specialized Outpatient Pelvic Floor Physical Therapy Clinic

Bonnie Lasher[1], Sharon Thompson[1], Nicole Cozean[1]; [1] PelvicSanity, Inc.
Presented By: Nicole Cozean

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective
Much of the research into pelvic floor physical therapy has focused on the use of Kegel exercises, or the voluntary contraction of the pelvic floor. In some applications these have shown positive clinical outcomes, specifically with stress urinary incontinence. In other diagnoses, Kegel exercises have been shown to be ineffective or less effective than manual physical therapy, or in cases of pelvic floor hypertonicity are even contraindicated.

Because much of the literature on pelvic floor physical therapy has focused on Kegels and biofeedback, this may influence clinicians to overutilize Kegel exercises to the exclusion of other options for patients, and many physicians associate pelvic floor physical therapy solely with these voluntary contractions. In this retrospective chart review, we examine the use of Kegel exercises in 129 consecutive patients with a variety of diagnoses and pelvic floor dysfunction.

Study Design and Outcomes
This retrospective analysis examined consecutive patient charts of patients with confirmed pelvic floor dysfunction. For each patient, it was determined: 1) whether they were given Kegel exercises to do, and 2) if so, what percentage of their home program consisted of Kegel exercises.

Methods
Results were gathered from a retrospective chart review. One hundred twenty-nine consecutive patients were evaluated over May-June 2018. Results were analyzed by primary diagnosis.

Results
In total, 20 patients of the 129 (15.5%) reviewed received Kegel exercises as part of their home program. In no case did Kegels compromise more than 25% of a patient's home exercise program. For 18 patients (13.9%) Kegels consist of between 10 and 25% of their home exercise program, while for two patients (1.5%) Kegels constituted less than 10% of their program.

The results were highly dependent on the primary diagnosis of the patient. No patient with primary complaints of sexual pain (9 total) or bowel dysfunction (9) were given Kegel exercises. Of the 88 patients presenting with pelvic pain, two (2.3%) were given Kegel exercises as part of their home program. For the twenty-nine patients with urinary symptoms as their primary complaint, seven (29.1%) were assigned Kegels. Diastasis recti patients received Kegel exercises 67% (two of three) and 100% of patients (9 of 9) with prolapse were assigned Kegels.

Conclusions
In clinical practice, this data indicates that positive clinical outcomes are possible when Kegels comprise at most a small part of a home exercise program for specific patients. Kegels are used most prominently for patients with a diagnosis of pelvic organ prolapse and diastasis recti, and secondarily for urinary diagnoses like incontinence. Kegels were either infrequently used or contraindicated for use for patients with pelvic pain, sexual pain, or bowel dysfunction. Medical professionals referring to pelvic floor physical therapy need additional education in how a physical therapist can identify, assess, and address the underlying cause of pelvic floor dysfunction.

Acknowledgments/Disclosures

(29) Impact of a Pelvic Pain Clinic on Emergency Department Resource Utilization

Hindiya Mustafa[1], Hoa Nguyen[1], Isaiah Johnson[1]; [1] Carilion Clinic Department of Obstetrics and Gynecology
Presented By: Isaiah Johnson

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective
The aim of this study is to describe patterns of utilization of the Carilion Clinic Emergency Department (ED) and its resources by patients in the 6 month period before and after evaluation in the Pelvic Pain clinic.

Study Design and Outcomes
This is a retrospective case series examining the utilization of an emergency department's resources before and after the establishment of care with a pelvic pain clinic. Outcomes looked at included amount of ED visits, opioids prescribed, imaging and surgeries performed.

Methods
Patients aged 18â€"65 evaluated for chronic pelvic pain in the Carilion Pelvic Pain Clinic between 2011 and 2015 were identified through a query of the EMR. Data were extracted for age, ethnicity, parity, payor status, gynecologic procedures performed for pain indications during the study period, number and type of imaging studies, opioid medication prescriptions, and number of ED visits for pelvic and abdominal pain. Data was analyzed using paired sample t-test.

Results
A total of 98 patients were included in the study. Mean age was 39.2. The most frequent payor status was uninsured (36.2%). The average number of ER visits per patient during the 6 months preceding evaluation was 0.62 compared to 0.33 ($p < 0.01$) in the 6 months following evaluation. Ultrasound utilization was also decreased following evaluation with 0.65 versus 0.35 studies/patient ($p < 0.01$). More major (0.01 vs 0.14, $p < 0.01$) and minor (0.16 vs 0.51, $p < 0.01$) procedures were performed per patient in the 6 months following initial evaluation.

Conclusions
Evaluation and management of patients in a Pelvic Pain clinic is associated with a reduced rate of emergency department utilization within the Carilion Clinic Health system.

Acknowledgments/Disclosures

(30) Path to endometriosis diagnosis: results of a survey of women with endometriosis

Georgine Lamvu[1], Oscar Antunez Flores[2], Mona Orady[3], Beth Schneider[4]; [1] Orlando VA Medical Center, Orlando, Florida,[2] AbbVie, Inc., North Chicago, IL,[3] Dignity Health, San Francisco, CA,[4] MyHealthTeams, San Francisco, CA
Presented By: Georgine Lamvu

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective
Endometriosis is a chronic disease that is often underdiagnosed or misdiagnosed, due to lack of awareness, and uncertainty regarding diagnosis. Our aim was to describe what women report experiencing from onset of pelvic pain symptoms to the time when they receive an endometriosis diagnosis, including the number of years and conversations with healthcare professionals (HCPs), and other conditions they were diagnosed with along the way.

Study Design and Outcomes
This was a 23-question online survey, which asked details about Women's path to an endometriosis diagnosis, quality of life due to endometriosis pain, and interaction with HCPs. The survey was developed based on Women's experiences with endometriosis, as shared on MyEndometriosisTeam.com, a social network for women living with the disease, and was validated by women with endometriosis. Here we report on survey responses focused on early symptoms of endometriosis, and timing and circumstances surrounding diagnosis.

Methods
Participants were recruited via MyEndometriosisTeam.com; members were invited by email to participate in the survey. Other participants were solicited by invitations posted on MyEndometriosisTeam's Facebook page. Invitation to participate included a link to an online survey, which was anonymous. Women who provided consent to participate then proceeded to the survey questions. Participation was limited to women 19 years or older and self-identified as having a surgical or non-surgical diagnosis of endometriosis.

Results
From January 31 through April 15, 2018, the survey was sent via e-mail to approximately 28,000 women in the US and outside of the US (Australia, Canada, Ireland, New Zealand, and United Kingdom); 16% of women opened the email, of which 10% completed the survey. A total of 317 women in the US and 134 outside of the US completed the survey; 47% of US women (Non-US: 48%) were 30-39 years old. This population was validated as being representative of women with endometriosis by comparing to the demographics of women on MyEndometriosisTeam.com. 60% (Non-US: 56%) reported feeling endometriosis-related symptoms by age 16. Symptoms that led women to seek a diagnosis included menstrual pelvic pain (US: 80%; Non-US: 75%), heavy bleeding/clotting (US: 74%; Non-US: 69%), back pain (US: 67%; Non-US: 66%), and non-menstrual pelvic pain (US: 64%; Non-US: 52%). Among those who sought a diagnosis, 49% of US women (Non-US: 54%) reported it took 6 or more years to receive the correct diagnosis, and 29% (Non-US: 27%) reported they had 20 or more conversations with HCPs before getting diagnosed. Many were first diagnosed with anxiety (US:

51%; Non-US: 34%), depression (US: 47%; Non-US: 37%) or irritable bowel syndrome (US: 37%; Non-US: 43%) before being diagnosed with endometriosis. Most diagnoses (US: 83%; Non-US: 78%) were made by a gynecologist; 78% of US diagnoses (Non-US: 77%) included a laparoscopy/laparotomy.

Conclusions

In this online survey, women reported that their path to receiving a diagnosis of endometriosis was lengthy. They reported having many discussions with HCPs, and receiving multiple diagnoses other than endometriosis. Our findings, although limited by the survey design and a small population sample, suggest there may be a need for better education, diagnostic guidelines and validated screening tools to help reduce misdiagnosis and diagnostic delay.

Acknowledgments/Disclosures

Georgine Lamvu is the Chairman of the Board for the International Pelvic Pain Society, a Pfizer Grants for Learning recipient, the Past Director of the National Vulvodynia Registry and a past member of Dailchi Sankyo Ob-Gyn Advisory Board. In addition, Dr. Lamvu has serves as a paid consultant to AbbVie. Mona Orady is on the Board for the Society of Laproendoscopic Surgeons, is the Director of Robotic Surgery at St Francis Memorial hospital. In Addition, Dr. Orady has served as a paid consultant to Abbvie. Beth Schneider is an employee of MyHealthTeams. MyHealthTeams conducted the research on behalf of AbbVie and was compensated for the study.

Oscar Antunez Flores is an employee of AbbVie, receiving stock and/or stock options. This work was funded by AbbVie, Inc. AbbVie participated in the study design, research, data collection, analysis and interpretation of data, writing, reviewing, and approving the publication. Jeanie K. Meckes, PhD, of AbbVie, provided medical writing assistance in the development of this publication.

(31) The Effect of Chronic Pelvic Pain on Quality of Life among Turkish University Students

Furkan Keskin[1], Irem Yapar[1], Ayca Aklar Corekci[2], Rukset Attar[3]; [1] Maltepe University Medical School,[1] Yeditepe University Medical School,[2] Yeditepe University, Health Sciences Faculty, Physiotherapy and Rehabilitation Department,[3] Yeditepe University, Medical School, Department of Obstetrics and Gynecology;
Presented By: Furkan Keskin

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective

Chronic pelvic pain in women is pain perceived in structures of pelvis, not directly related to menstruation or intercourse, lasting more than six months with a persistent or noncyclic pattern. There is mostly no known specific cause identified. This a condition which is almost always related to other somatic pain syndromes (e.g., fibromyalgia, chronic fatigue, irritable bowel syndrome). Multidisciplinary approach including psychological support is recommended while engaging patients. The prevalence is estimated to be around 15% in population. Because there is no curative treatment, understanding the effects of chronic pain on quality of life is important to manage these patients more effectively. In this study, we aimed to investigate the effect of chronic pelvic pain on the quality of life among university students in Turkey.

Study Design and Outcomes

523 female students at Yeditepe University, Istanbul, Turkey were asked to fill out a questionnaire which includes questions regarding socio-demographic information, quality of life and specific health problems.

Methods

To understand quality of life, Turkish version of SF-36 form was used. This form has 8 different parts focusing on physical functioning, social functioning, role limitations due to emotional problems (role “emotional”), role limitations due to physical problems (role “physical”), bodily pain, vitality, mental health, and general health perception individually. Independent T test was used to compare the levels of quality of life within groups which suffer from chronic pelvic pain in 6 months and which does not. The data was analyzed by using the SPSS 22.0 computer program.

Results

42 of 520 students are found to suffer from chronic pelvic pain in 6 months. Statistical analysis of 42 female students showed that the mean physical functioning level was 81,1Â±18,7 in chronic pelvic pain suffering group and was 87,7Â±15 in non-chronic pelvic pain suffering group ($p < 0,05$) . The mean bodily pain level was 30,2Â±17,1 in chronic pelvic pain suffering group and was 20,8Â±16,8 15 in non-chronic pelvic pain suffering group ($p < 0,05$) . The mean level of role-emotional (role limitations due to emotional problems) was 28,2Â±42,9 in chronic pelvic pain suffering group and was 42,6Â±42 non-chronic pelvic pain suffering group ($p < 0,05$). The mean level pain scale was 29,7Â±17 in chronic pelvic pain suffering group and was 20,8Â±16,8 non-chronic pelvic pain suffering group ($p < 0,05$).

Conclusions

We observed that the ones who have lower physical functioning, increased bodily pain, more role limitations due to emotional problems and higher level of pain scale also, have more chronic pelvic pain in their lives. Therefore, investigation of pathophysiology of chronic pelvic pain is very important for the quality of women.

Acknowledgments/Disclosures

Chronic pelvic pain, Quality of Life, Female, SF36

(32) Impact of endometriosis pain: results from an online survey of women with endometriosis

Georgine Lamvu[1], Oscar Antunez Flores[2], Mona Orady[3], Beth Schneider[4]; [1] Orlando VA Medical Center, Orlando, Florida,[2] AbbVie, Inc., North Chicago, IL,[3] Dignity Health, San Francisco, CA,[4] MyHealthTeams, San Francisco, CA
Presented By: Georgine Lamvu

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective

Endometriosis is characterized by pelvic pain that can have a significant impact on patient's quality of life and function. Our aim was to describe the prevalence, severity and impact of pain symptoms on quality of life as reported by women living with the disease.

Study Design and Outcomes

This was a 23-question online survey which asked women about their path to endometriosis diagnosis, quality of life due to endometriosis pain, and interaction with healthcare providers. The survey was developed based on conversations posted on MyEndometriosisTeam.com, a social network for women living with the disease, and was validated by women with endometriosis. Here we report on survey responses focused on endometriosis related pain symptom prevalence, severity and impact on quality of life.

Methods

Participants were recruited through MyEndometriosisTeam.com; members were invited by email to participate in the survey. Other participants were solicited via invitations posted on MyEndomteriosisTeam's Facebook page. Invitation to participate included a link to an online survey, which was anonymous. Women who provided consent to participate then proceeded to the survey questions. Participants were women 19 years or older and self-identified as having a surgical or non-surgical endometriosis diagnosis.

Results

From January 31 through April 15, 2018, approximately 28,000 emails were sent out inviting women from the US and outside of the US (Australia, Canada, Ireland, New Zealand, and United Kingdom) to participate in the survey; 16% of women opened the email, of which 10% completed the survey. A total of 317 women from the US and 134 women from outside of the US completed the survey; 47% of US women and 48% of non-US women were between 30 and 39 years of age. This population was validated as being representative of women with endometriosis by comparing to the demographics of women on MyEndometriosisTeam.com. Symptoms that women reported as most troubling included back pain (US: 79%; Non-US: 82%), non-menstrual pelvic pain (US: 76%; Non-US: 71%), and pelvic pain during periods (US: 73%; Non-US: 76%). Of US women, 55% (Non-US: 53%) reported they experience some type of endometriosis-related pain on a daily basis, and 61% of US women (Non-US: 61%) reported they always experience pain during periods, of which 88% (Non-US: 87%) indicated they started having period pain before age 16. Most of these women (US: 77%; Non-US: 76%) described their period pain as severe cramps. On a scale of 0 to 10 (no pain to worst imaginable pain), 44%

of US women (Non-US: 47%) reported period pain to be a 9 or 10. Women indicated their endometriosis pain was often triggered or worsened during menstruation (US: 76%; Non-US: 72%), prior to menstruation (US: 66%; Non-US: 74%), and by sexual intercourse (US: 58%; Non-US: 49%). Other symptoms that women attributed to their endometriosis pain included fatigue (US; 95%; Non-US: 91%), gastrointestinal issues (US: 93%; Non-US: 90%), and difficulty sleeping (US: 87%; Non-US: 88%). Most women agreed that endometriosis has widespread negative impact on quality of life, as it interferes with their social life (US: 76%; Non-US: 83%), education/career (US: 76%; Non-US: 80%), starting/raising a family (US: 67%; Non-US: 73%), and sex life (reported to have painful intercourse â€“ US: 76%, Non-US: 74%; stopped/avoided sex due to pain â€“ US: 65%, Non-US: 67%).

Conclusions

In this group of women who participated in a social network for endometriosis, most women in our sample reported experiencing some type of endometriosis-related pain daily, severe pain symptoms during periods, as well as a significant impairment in quality of life that interferes with their family and social life, education/career, and sex life. Our findings, although limited by a small sample size, suggest that the impact of endometriosis goes beyond pain and that other factors such as co-morbid symptoms, and impact on quality of life should also be considered when treating women with endometriosis.

Acknowledgments/Disclosures

Georgine Lamvu is the Chairman of the Board for the International Pelvic Pain Society, a Pfizer Grants for Learning recipient, the Past Director of the National Vulvodynia Registry and a past member of Dailchi Sankyo Ob-Gyn Advisory Board. In addition, Dr. Lamvu has serves as a paid consultant to AbbVie. Mona Orady is on the Board for the Society of Laproendoscopic Surgeons, is the Director of Robotic Surgery at St Francis Memorial hospital. In addition, Dr. Orady has served as a paid consultant to Abbvie. Beth Schneider is an employee of MyHealthTeams. MyHealthTeams conducted the research on behalf of AbbVie and was compensated for the study. Oscar Antunez Flores is an employee of AbbVie, receiving stock and/or stock options. This work was funded by AbbVie, Inc. AbbVie participated in the study design, research, data collection, analysis and interpretation of data, writing, reviewing, and approving the publication. Jeanie K. Meckes, PhD, of AbbVie, provided medical writing assistance in the development of this publication.

(33) Postpartum women are more sensitive to pressure pain stimuli at abdomen and pelvis but demonstrate similar exercise induced hypoalgesia as nulligravid women.

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Presented By: Rita Deering

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective

To evaluate pressure pain thresholds (PPTs) at the abdomen and pelvic region at rest and in response to fatiguing trunk flexor exercise in postpartum women and nulligravid women.

Study Design and Outcomes

This longitudinal study examined PPTs and time to task failure (TTF) for an intermittent isometric trunk flexion exercise task.

Methods

Six nulligravid (control) and 22 postpartum, (14 delivered vaginally and 8 delivered via Cesarean section) women participated. Postpartum women were tested twice at 8-10 and 24-26 weeks postpartum. Nulligravid women were assessed twice (16 weeks apart) to match postpartum testing. PPTs were assessed with a computerized pressure algometer in the pelvic region (midpoint of Pfannenstiel incision scar in women who had a Cesarean delivery, 2 finger widths above pubic symphysis in nulligravid women and women who delivered vaginally) at rest, and at the left superior rectus abdominis before and after fatiguing trunk flexor exercise. Three trials were performed at each testing site and averaged. An intermittent isometric trunk flexion fatiguing protocol was performed in a Biodex dynamometer at 50% of maximal voluntary contraction (MVC) for 6 seconds, with a 4 second rest break between contractions, and a 6 second MVC performed every minute. One-way analysis of variance (ANOVA) with group (control, vaginal delivery, Cesarean delivery) as a between-subjects factor was used to compare subject characteristics (age, weight, etc) at the two testing time points, with a LSD correction used for post-hoc testing when significant group differences were found. Repeated measures ANOVA with group as a between-subjects factor was used to assess PPTs across time (before and after fatiguing exercise) and among groups.

Results

The groups were similar in age at both time points ($p=0.161$ and $p=0.164$, respectively). At 8-10 weeks postpartum, women in the vaginal delivery and Cesarean delivery groups weighed more than control women ($p=0.010$ and $p=0.009$, respectively), but weight was similar among the three groups at the second time point ($p=0.064$). At 8-10 weeks postpartum, women who delivered vaginally had a shorter TTF than control women ($p=0.001$), and women in the Cesarean delivery group were more fatigable than controls ($p < 0.001$) and women who delivered vaginally ($p=0.038$). At 24-26 weeks postpartum, both the vaginal delivery and Cesarean delivery groups were more fatigable than controls ($p=0.001$ for both groups), but no difference was demonstrated in TTF between the vaginal delivery and Cesarean delivery groups

($p=0.789$). Postpartum women had lower PPTs in the pelvic region than controls at 8-10 weeks postpartum (Vaginal delivery $p=0.002$, Cesarean delivery $p < 0.001$) and 24-26 weeks postpartum (Vaginal delivery $p=0.003$, Cesarean delivery $p=0.006$); however, there was no difference in PPTs between delivery types (8-10 weeks $p=0.196$ and 24-26 weeks $p=0.903$). Baseline PPT at the left superior rectus abdominis (prior to exercise) was lower in women who delivered vaginally compared to control women at both time points (8-10 weeks $p=0.012$; 24-26 weeks $p=0.006$); however, no difference in baseline PPT was noted between women who had a Cesarean delivery and controls (8-10 weeks $p=0.291$; 24-26 weeks $p=0.237$) and women who delivered vaginally (8-10 weeks $p=0.107$; 24-26 weeks $p=0.226$). Postpartum women demonstrated similar exercise-induced hypoalgesia (increase in PPTs post exercise) as control women at 8-10 weeks postpartum and 24-26 weeks postpartum (relative change in PPT: group $p=0.827$ and group $p=0.612$, respectively; absolute change in PPT: group $p=0.789$ and group $p=0.386$, respectively).

Conclusions

Postpartum women report hyperalgesia (lower PPTs) at the pelvic area as compared to nulligravid women, regardless of delivery type. This increased sensitivity to pain in the pelvic region is still present approximately 6 months after childbirth in this cohort. Women who delivered vaginally also had greater pain sensitivity at the abdomen than nulligravid women, but women who had a Cesarean delivery demonstrated PPTs at the abdomen that were not different than controls or women who delivered vaginally. Postpartum women also demonstrated similar exercise-induced hypoalgesia as controls in response to fatiguing trunk flexor exercise, despite having a profoundly shorter time to task failure. These findings suggest that trunk flexor exercise may be beneficial to postpartum women, both for improving endurance of these muscles and as a method of non-pharmacologic relief of abdominal pain.

Acknowledgments/Disclosures

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(34) Elagolix Reduced Rescue Opioid Use in Two Pooled Phase 3 Randomized, Placebo-controlled Trials in Women with Endometriosis-associated Pain

Hugh S. Taylor[1], Stephanie J. Estes[2], James W. Thomas[3], Ahmed M. Soliman[3], Keith Gordon[3], Eric Surrey[4]; [1] Yale School of Medicine, New Haven, CT,[2] Penn State Hershey Obstetrics and Gynecology, Hershey, PA,[3] AbbVie Inc, North Chicago, IL,[4] Colorado Center for Reproductive Medicine, Lone Tree, CO
Presented By: Stephanie J. Estes

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective
To evaluate the effect on rescue opioid use of elagolix, an oral, non-peptide gonadotropin-releasing hormone antagonist which significantly reduced the most common pain symptoms of endometriosis, dysmenorrhea and non-menstrual pelvic pain, compared to placebo in two randomized, placebo-controlled trials, Elaris Endometriosis [EM]-I and EM-II..

Study Design and Outcomes
Two 6-month, randomized, double-blind, placebo-controlled phase 3 trials (Elaris EM-I [N=871] and EM-II [N=815]) evaluated the efficacy and safety of elagolix (150mg once daily [QD] and 200mg twice daily [BID]) in women with moderate to severe endometriosis-associated pain. Women were allowed to use either naproxen and/or a single opioid as rescue analgesic (opioid varied by country).

Methods
Daily rescue opioid pill counts were recorded in an electronic-diary, averaged over each 35-day interval and pooled across the two studies. Statistical significance vs. placebo for the mean percent change from baseline in mean daily pill count and mean percent change from baseline in percentage of days taking rescue opioid pills were each based on an ANCOVA model. Adverse events and changes in bone mineral density were assessed and summarized.

Results
At baseline, the mean (SD) daily rescue opioid pill count was 0.36 (0.60) for placebo, 0.39 (0.75) for 150mg QD elagolix and 0.38 (0.73) for 200mg BID elagolix. The 200mg BID elagolix group had a significantly greater mean percent decrease from baseline in average daily rescue opioid pill count than placebo at months 1 through 6 (least-squares mean percent change from baseline to month 6; placebo = +4.6%, 150mg QD= -17% [P=0.232], 200mg BID= -56% [$P < 0.001$]). At baseline, the mean percentage of days per month that women took rescue opioid medication was 17% for placebo, 18% for 150mg QD elagolix and 17% for 200mg BID elagolix. Each elagolix group had a significantly greater decrease in the least-squares mean percent change from baseline to month 6 in percentage of days taking rescue opioid medication, placebo = -4.8%, 150mg QD elagolix = -6.8% [P=0.019], and 200mg BID elagolix = -9.4% [$P < 0.001$]. As previously reported, elagolix-treated women had hypoestrogenic events consistent with the mechanism of action, such as hot flushes and decreased bone mineral density, though few discontinued due to these changes.

Conclusions
Given the risks of opioid use, including abuse and dependence, it is important to evaluate changes in opioid use associated with new treatments for chronic pain conditions such as endometriosis. In this pooled analysis of rescue analgesic use in two phase 3 trials, both doses of elagolix dose showed a significant reduction in days in which rescue opioid medication was taken, and the 200mg BID elagolix dose showed a significant reduction in the mean daily pill counts compared to placebo.

These data were previously presented at the 2018 Society of Endometriosis and Uterine Disorders (SEUD) Congress.

Acknowledgments/Disclosures
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This work was funded by AbbVie Inc. AbbVie participated in the study design, research, data collection, analysis and interpretation of data, writing, reviewing, and approving the publication. Jane M. Rodgers, of AbbVie Inc, provided medical writing assistance in the development of this publication.

(35) The Effects of Dysmenorrhea on Quality of Life Among Female University Students

Ayça Aklar Çörekçi[1], İrem Yapar[2], Furkan Keskin[3], Alperen Pektaş[1], Rukset Attar[4], Feryal Subaşı[1]; [1] Yeditepe University, Health Sciences Faculty, Physiotherapy and Rehabilitation Department,[2] Yeditepe University, Medical School,[3] Maltepe University, Medical School,[4] Yeditepe University, Medical School, Department of Obstetrics and Gynecology
Presented By: Ayça Aklar Çörekçi

Saturday, October 20, 2018
Presentation Time: 9:05 AM - 9:35 AM

Objective

Dysmenorrhea is a painful syndrome accompanying with the menstrual cycle. It can be classified into two categories: primary and secondary dysmenorrhea. Primary dysmenorrhea is defined when there is a painful menstruation with a normal pelvic anatomy. Secondary dysmenorrhea is a condition when there is an underlying pelvic pathology such as; endometriosis, pelvic inflammatory disease, intrauterine devices, irregular cycles or infertility problems, ovarian cysts, adenomyosis, uterine myomas or polyps, intrauterine adhesions, or cervical stenosis. The prevalence in general population alters from 47% to 80%. It is a common cause for irregular attendance to classes at school as it causes emotional and physiological problems, In this study, we aimed to investigate the effect of dysmenorrhea on health related quality of life (HRQoL) among female university students in Istanbul, Turkey.

Study Design and Outcomes

Five hundred and twenty female students at Yeditepe University, Istanbul, Turkey were involved in this study. Each student was asked to fill out a structured questionnaire including socio-demographic information, general health condition, and health related quality of life (HRQoL). Also, students were asked whether they experience pain during menstruation period.

Methods

The perceived pain level was evaluated by using the Visual Analogue Scale (VAS), which is 10 point Likert type scale. Pain scores were grouped as 1-3 mild, 4-7 moderate and 8-10 severe dysmenorrhea. The Turkish version of SF-36 questionnaire was used to rate HRQoL of students. The SF-36 includes eight areas of general health as follows: physical functioning, social functioning, role limitations due to emotional problems (role “emotional”), role limitations due to physical problems (role “physical”), bodily pain, vitality, mental health, and general health perception. The data were analyzed by using the SPSS 22.0 computer program. The one-way Annova test was used to compare the rate of HRQoL within the groups.

Results

Among 520 students, 83% were having pain during menstruation. Most of the students described their pain as starting on the first day of the menstruation and lasting only for a few days. %45.1 of the students were using medication to reduce the pain. According to the severity of dysmenorrhea, there was no statistically significant difference between the mean scores received from HRQoL scale, with the exception of the domains of physical functioning ($P < 0.05$), role “physical” ($P < 0.05$), and bodily pain ($P < 0.001$).

Conclusions

The results indicate that there is a high prevalence of dysmenorrhea (%83) among female university students in Yeditepe University. Almost two-third of the females considered their dysmenorrhea level as severe and moderate. Scores received from physical functioning, role-physical, role-emotional, mental health and bodily pain domains of SF-36 showed a decrease with the increasing severity of dysmenorrhea. Statistically significant changes were only found in the domains of SF-36 related to physical health.

Acknowledgments/Disclosures

(36) Endometriosis-associated deep dyspareunia and central sensitization

Natasha Orr[1], Heather Noga[2], Kelly Smith[1], Christina Williams[1], Catherine Allaire[1], Mohamed Bedaiwy[1], Paul Yong[1]; [1] University of British Columbia,[2] Women's Health Research Institute
Presented By: Natasha Orr

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective

We have previously found that bladder/pelvic floor tenderness (BPFT) was associated with severity of deep dyspareunia, in both women with Stage I/II or Stage III/IV endometriosis. Thus a role for central sensitization, manifesting as BPFT, has been proposed for deep dyspareunia. The objective of the study was to determine the relationship between central sensitization (assessed by the Central Sensitization Inventory; CSI) with BPFT and deep dyspareunia in women with endometriosis.

Study Design and Outcomes

Cross-sectional analysis from a prospective data registry from January 2018 - May 2018 at a tertiary centre for endometriosis (ClinicalTrials.gov #NCT02911090). Primary outcome was central sensitization determined using the self-reported CSI (scale from 0-100). Main variables of interest were: a) BPFT (yes/no) assessed on undigital pelvic exam; and b) severity of deep dyspareunia measured on a self-reported questionnaire using an 11-point numeric rating scale (0=no pain; 10=worst pain imaginable), categorized as none/low pain (0-4) and high pain (5-10).

Methods

Included were women aged 18-50 years with endometriosis (current palpable nodule or visualized endometrioma on ultrasound, or previously surgically diagnosed), who were new or re-referred to the centre and consented to the data registry. Bivariate associations were tested between the CSI score, and BPFT (yes/no) and severity of deep dyspareunia (low 0-4 vs. high 5-10). We then divided our cohort into 3 groups: a) absent-mild deep dyspareunia (0-4); b) high deep dyspareunia (5-10) without BPFT; and c) high deep dyspareunia (5-10) with BPFT. Between group differences in CSI were determined using ANOVA, followed by post-hoc testing using the Games-Howell test.

Results

Data from 151 women with endometriosis were analyzed. The mean age of this cohort was 33.5Â±7.6 years and the mean CSI score was 42.4Â±19.5 (mean+/-SD). Forty-three percent of the cohort (65/151) had BPFT. Mean CSI was higher in women with BPFT compared to those without BPFT: 52.5Â±19.5 vs. 34.8Â±15.8 ($t=-6.71$; $p < 0.001$). The sample was then divided into the 3 groups: absent-mild deep dyspareunia ($n = 48$); high deep dyspareunia without BPFT ($n = 47$); and high deep dyspareunia with BPFT ($n = 56$). There was a significant difference between the groups (ANOVA $F = 30.2$, $p < 0.001$). On post-hoc testing, women with high deep dyspareunia and BPFT had a significantly higher CSI score compared to women with high deep dyspareunia but no BPFT (Games-Howell $p < 0.001$) and compared to women with absent-mild deep dyspareunia (Games-Howell $p < 0.001$). In contrast, no significant difference was found between the group of women with high deep dyspareunia and no BPFT and the group of women with absent-mild deep dyspareunia.

Conclusions

Using the Central Sensitization Inventory (CSI) as a marker for central sensitization, we found higher CSI score in women with deep dyspareunia and bladder/pelvic floor tenderness (BPFT), compared to women without deep dyspareunia and compared to women with deep dyspareunia but without BPFT. Therefore, we propose that BPFT is a marker of central sensitization, and identifies the subset of women with endometriosis-associated deep dyspareunia due to central sensitization. It is this subgroup where deep dyspareunia may be best managed through a multidisciplinary approach. Overall, this study contributes to the body of research aimed at better phenotyping women with deep dyspareunia to allow for more personalized treatment of sexual pain in endometriosis.

Acknowledgments/Disclosures

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(37) The Effect of Endometriosis on Heart Rate Variability in Women with and Without Chronic Pelvic Pain

Poster Presenter: Bartu Avci
Erkut Attar[1], Burcin Karamustafaoglu Balci[1], Bartu Avci[1], Murathan Guler[1], Zehra Kabakci[1], Ali Elitok[1], Vuslat Lale Bakir[2], Aytac Oncul[1]; [1] Istanbul University,[2] Haseki Training and Research Hospital, Istanbul
Presented By: Bartu Avci

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective
Available data suggest that there is an association between endometriosis and a group of disorders including autonomic nervous system irregularities as a comorbidity. A deeper understanding of relationship between endometriosis and autonomic nervous system is needed as it may lead to novel discoveries on the causes or consequences of endometriosis. In this study, we analyze heart rate variability (HRV) in patients with endometriosis.

Study Design and Outcomes
The aim of this hospital-based prospective study is to show if there is a change in autonomic function (Heart Rate Variability) of women who have endometriosis with or without chronic pelvic pain.

Methods
This study is approved by the ethical committee of this institution and informed consent was obtained from each patient. It includes women with endometriosis associated pelvic pain and endometriosis without pain, plus healthy controls. The associated pelvic pain were assessed by Visual Analogue Scale (VAS).So far, 24h holter monitoring was done for 8 controls and 14 patients with endometriosis. The test is well tolerated by the patients. The parameters measured were Standard deviation of NN intervals (SDNN), Standard deviation of the average NN intervals for each 5 min segment of a 24 h HRV recording (SDANN), Mean of the standard deviations of all the NN intervals for each 5 min segment of a 24 h HRV recording (SDNNI), Percentage of successive RR intervals that differ by more than 50 ms (pNN50),Root mean square of successive RR interval differences (RMSDD).

Results
The mean VAS scores of the control group is 2.25Â±1,16 and endometriosis group is 6,85Â±3,00 ($P < 0.001$).The limited data obtained from this ongoing study has shown that there is difference in HRV parameters in endometriosis associated pain. It seems that there is a correlation between HRV parameters and characteristics of pain; PNN50 is significantly changed for the number of painful areas ($P < 0.05$). MINSPEC for total area of pain ($P < 0.05$) and the number of painful areas ($P < 0.01$) was significant. Yet, we do not have enough data, to compare the endometriosis groups with and without chronic pelvic pain.

Conclusions
There is no study showing any association between endometriosis and HRV, yet. It seems that there is correlation between the characteristics of pain and HRV parameters. There may be a correlation between the severity of pain and HRV in patients with endometriosis. We are expecting to present comparable data to make a conclusion if a significant change occurs in autonomic functions of women who have endometriosis associated pain.

Acknowledgments/Disclosures
No disclosures.

(38) Pelvic pain and infertility concerns among women with endometriosis

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Presented By: Kate Wahl

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective

Endometriosis is a common gynecological condition characterized by pain symptoms and/or infertility. The aim of this study was to determine whether the pain symptoms of endometriosis - dysmenorrhea, chronic pelvic pain, and dyspareunia - are associated with concerns about infertility, independent of potential confounders.

Study Design and Outcomes

Cross-sectional study of the prospective Endometriosis Pelvic Pain Interdisciplinary Cohort Data Registry (EPPIC, NCT02911090) at a tertiary referral center for pelvic pain and endometriosis. The primary outcome variable was total score on the infertility module of the Endometriosis Health Profile (EHP-30) Questionnaire, which includes four items that measure frequency of worry, inadequacy, depression and relationship strain related to infertility. Each item is scored from 0-4, for a maximum score of 16 (higher score indicating more concerns about infertility).

Methods

Inclusion criteria were new or re-referral to the center January 2014 - June 2017, pathologically-confirmed endometriosis at our center, and consent to and completion of an online baseline questionnaire. Exclusion criteria were postmenopausal status (surgical or spontaneous) and failure to complete the infertility module. The independent variables of interest were severity of dysmenorrhea, chronic pelvic pain, deep dyspareunia, and superficial dyspareunia, reported on an 11-point numeric rating scale (0=no pain; 10=worst pain imaginable). We considered known risk factors for infertility, reproductive history, and demographic characteristics as potential confounders. Because the assumptions of linear regression were not met, we performed multivariable ordinal logistic regression for the primary outcome, with the EHP-30 infertility concern score categorized into 5 groups: 0, 1-4, 5-8, 9-12, and 13-16.

Results

312 potentially eligible participants met the study criteria. The average age of the sample was 32.69 (SD=6.46). One hundred ninety-five (62%) participants had stage I or II endometriosis, 106 (34%) had stage III or IV disease, and 11 (4) had an unknown stage. Eighty-two participants (26%) were parous, 125 (40%) reported previous difficulties conceiving, and 89 (29%) were trying to conceive. Fifty-five participants (18%) had an infertility concern score of 0; 40 (13%) had a score of 1-4; 70 (22%) had a score of 5-8; 68 (22%) had a score of 9-12; and 79 (25%) had a score of 13-16. Average pain scores were: dysmenorrhea (M=7.31, SD=2.56), chronic pelvic pain (M=6.87, SD=2.21), deep dyspareunia (M=6.24, SD=3.08), and superficial dyspareunia (M=3.67, SD=3.19). Ordinal logistic regression showed that an increase in severity of chronic pelvic pain and severity of superficial dyspareunia were independently associated with an

increase in the odds of having more frequent infertility concerns (OR=1.21, 95% CI: 1.07-1.37, p=.0025 and OR=1.10, 95% CI: 1.01-1.07, p=0.027 respectively), controlling for age, stage, parity, history of infertility, and whether or not the participant was currently trying to conceive. In contrast, dysmenorrhea and deep dyspareunia were not associated with the odds of having more frequent infertility concerns (OR=1.10, 95% CI: 0.99-1.22, p=.078 and OR=0.98, 95% CI: 0.88-1.08, p=.71 respectively).

Conclusions

Among women with endometriosis at a tertiary referral center, chronic pelvic pain and superficial dyspareunia were independently associated with frequency of infertility concerns. The findings indicate that pelvic pain occurring outside of menstruation may lead to increased concerns about infertility. That superficial dyspareunia, but not deep dyspareunia, was associated with concerns about infertility may indicate that pain precluding or interrupting the initiation of intercourse, rather than deeper pain during intercourse, contributes to concerns about ability to conceive. Future research should aim to untangle the relationship between pelvic pain and infertility concerns, particularly the role of psychological factors in mediating this relationship.

Acknowledgments/Disclosures

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(39) Adductor Syndrome

Caroline Cooper[1]; [1] Mitchell Physiotherapy Inc Hunter Pelvic Clinic
Presented By: Caroline Cooper

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective
To outline a possible clinical presentation that may account for some vaginal pain presentations, based on cases that have experienced resolution of symptoms through treatment.

It is my intention to raise awareness of this as a possible syndrome, somewhat like the well know and documented piriformis syndrome.

I would like raise awareness in the academic and medical community.

Study Design and Outcomes
- Highlighting of common assessment findings in these patients
- Highlighting common treatments that have been effective in these patients

Methods
Presentation of biomechanical constructs using current research that explain adductor over activity and common referral patterns. Groups like symptoms and clinical objective findings with and treatment outcome that has been effective. Using current research to explain possible mechanisms behind treatment efficacy.

Results
Resolution of symptoms that is effective and long term.

Conclusions
Adductor longus and magnus can act a pelvic stabilizers in the presence of weak gluteus medius and maximus and other key core muscles. These muscles are disadvantaged by the wider sloping female pelvis. The over activity of these muscles creates active trigger points which are a pain referral source.

I feel this would be best done as a podium presentation in the musculoskeletal section. I accept that this is not a scientific paper, however there is no one, I know, in that community looking at this.

Acknowledgments/Disclosures
My patients who graciously share much person information with me.

(40) Chronic Pelvic Pain Flares: The Tip of the Iceberg?

Thomas Chelimsky[1]; [1] Medical college of Wisconsin
Presented By: Thomas Chelimsky

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective

Flares are well known to occur in chronic pelvic pain, particularly in interstitial cystitis/bladder pain syndrome (IC/BPS). They also seem to occur in myofascial pelvic pain syndrome (MPP). ICECAN (Interstitial Cystitis' Evaluation of the Central Autonomic Network) aims to determine if changes in autonomic function precede and could even cause changes in the chronic pelvic pain experience. To this end, the trial includes a detailed assessment of the chronology of flare associated events.

Study Design and Outcomes

The goal of this abstract is to present two such assessments.
ICECAN, an IRB-approved, multicenter, prospective, crossover-design, randomized study based at the Medical College of Wisconsin funded by NIH-NIDDK, will evaluate 60 women with IC/BPS, 60 women with MPP and 60 age-matched healthy control female subjects (HC).

Methods

The investigator-administered MEDYSA questionnaire assesses the presence or absence of other pain disorders co-morbid with pelvic pain such as migraine headache and fibromyalgia. The pelvic pain question-set includes open-ended questions regarding the sequence of events preceding and following a flare, for which many of the subjects elect to keep a diary.

Results

Subject 1 initially identified her flare as spanning Feb 12-14. Historical reconstruction identified preceding stereotypic events dating back 10 more days to Feb 2. Prior to this discussion, she had not recognized this sequence as a single entity. Diary review caused her to realize that this 12-14 day sequence occur every 6 weeks in almost identical chronology. The sequence follows:

- Friday, Feb 2: Starts with no specific identifiable physical or emotional stressor. Disturbing dreams for 3 nights that she links to PTSD from a surgical procedure when she remained awake during anesthesia. In the dreams, she is trying to figure out how to connect up her disconnected brain and body.
- Monday, Feb 5: Constipation increases a lot.
- Tuesday, Feb 6: Pencil stools; more anxiety
- Thursday, Feb 8: Usual pelvic pain; a.m. but even more constipated
- Friday, Feb 9: R side throbbing headache with sound sensitivity, nausea-lasted 1 hour (3-4pm)
- Saturday, Feb 10: Impacted, severe belly pain, nausea, increased fatigue
- Sunday, Feb 11: pain a bit better. But sleep poor, hot & cold, sweaty during the night.
- (STARTING POINT) Monday, Feb 12: Awoke with pelvic pain (went from usual 4/10 to 8/10). No appetite, severe fatigue, unable to function. Bowel & bladder up to 8/10, feels

like a knife in her bladder. Pain in bladder worsens when urinating. Headache on right side only again, lasting 1-2 hours.

- (ICECAN 24 hour monitoring day) Tuesday, Feb 13: 8/10 pain & headache same.
- Wednesday, Feb 14: Pain still at 8/10
- Thursday, Feb 15: flare improving, most symptoms much better.

Subject 2's flares link with her menstrual cycle and begin about half-way between ovulation and menstruation. She describes her sequence as follows:

- May 29: Increased fatigue, increased hunger, and her IBS (diarrhea-predominant) flared.
- May 30: R sided headache and brain fog; went to the wrong office for her physician appointment.
- June 1: estrogen intake ended (per monthly plan); Bad R sided headache with light and sound sensitivity, no nausea, and moderate to severe R neck, head and shoulder blade soreness.
- June 2: Overall malaise
- June 3: Generalized body pain increases (feels like fibromyalgia flare); bowel movements and urination become uncomfortable. Menstrual bleeding begins.
- June 4: Menstrual cramps
- June 5: Awoke at 5 am with pelvic pain flare which she describes graphically as someone ripping me apart. Stools are harder, with no stools at all today and the next.
- June 6: Increased urinary frequency, increased bladder pain with urination, headache worsens, appearance of brain fog, causing her to restart her estrogen 2 days early.
- June 7: Bad headache (often occur with red dye, which is present in GasX that she took).
- June 8-9: all flare symptoms are gone.

Conclusions

Flares of pelvic pain are complex and may involve more than uro-pelvic symptoms based on these two subjects, who reported nightmares, migraine headache, fibromyalgia flare, and IBS flare. These observations require further evaluation and confirmation to understand the prevalence of these non-pelvic end-organ symptoms in flares, the commonalities in symptom chronology across subjects, and the implications of these findings, if corroborated, to our understanding of pelvic pain pathophysiology.

Acknowledgments/Disclosures

(41) Prevalence of Muslim Women with Sexual Pain Among Female Sexual Dysfunction Patients In a Gynecology only Practice in Downtown Chicago

Ruba Akel[1], Sameena Rahman[1]; [1] Northwestern Feinberg School of Medicine/Center for Gynecology and Cosmetics
Presented By: Ruba Akel

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective
Muslim women are an underserved and rising population in the United States. Like many women in the U.S., they have a number of sexual complaints or diagnoses, yet there is paucity of data on this population. The objective of this study is to determine the prevalence of Muslim women who present with sexual pain diagnoses in a gynecology-only practice in downtown Chicago.

Study Design and Outcomes
After IRB approval was submitted through our institution, a retrospective chart review was conducted from July 2016-June 2018 to evaluate the number of patients that were seen in a private gynecology-only practice in downtown Chicago where sexual dysfunction is one of the predominate specialties of the practitioners. The group was further evaluated to see which patients were identified as Muslim to determine the prevalence of Muslim women suffering from female sexual dysfunction in this population. This was subdivided to determine how many of these women had been diagnosed with sexual pain, the evaluations and treatments they received, and whether or not they were lost to follow up.

Methods
Using the electronic medical record, e-clinical works, a list of several ICD 10 codes that are consistent with DSM-IV-TR criteria for female sexual dysfunction were utilized (female hypoactive desire disorder, female arousal disorder, female orgasmic disorder, dyspareunia, and vaginismus) to determine how many patients were seen in this practice during July 2016-June 2018 with diagnoses consistent with female sexual dysfunction. The data was further analyzed to determine the prevalence of Muslim women with sexual pain diagnoses within this population.

Results
During the July 2016-June 2018, there were 138 patients seen with one of the diagnoses consistent with either dyspareunia, vaginismus, female hypoactive desire disorder, female arousal disorder , or female orgasmic disorder. Of those patients with female sexual dysfunction, 20 of them were self identified as Muslim women (prevalence of 14,49%). Of these Muslim women with sexual dysfunction diagnoses, all of the women had experienced genito-pelvic pain either dyspareunia and/or vaginismus and some also had concurrent desire , arousal or orgasm disorders.

Conclusions
Muslim women are at risk for FSD, specifically genito-pelvic pain. There is a paucity of data for Muslim women with sexual dysfunction in the United States and in this abstract attempted to determine the prevalence of Muslim women with sexual pain diagnoses among a population of

women with female sexual dysfunction in a single private practice. The data is limited by extremely small sample size and retrospective nature. Their cultural view on sexuality and sexual relations may contribute to some of their dysfunction but more research is needed to help raise awareness and increase education in this population and improve their healthcare delivery among practitioners.

Acknowledgments/Disclosures

(42) Three Site Prospective Double-blind, Sham-controlled Pilot Study to Examine the Safety and Efficacy of CO2 Fractional Laser Therapy to the Vestibule in Women with Distress from Vestibulodynia: Interim Analysis of Vulvoscopic Photographic Images

Irwin Goldstein[1], Sue Goldstein[2], Susan Kellogg Spadt[3], Filippo Murina[4]; [1] Alvarado Hospital,[2] San Diego Sexual Medicine,[3] Center for Pelvic Medicine,[4] UniversitÃ di Milano
Presented By: Irwin Goldstein

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective
Vestibulodynia can be hormonally mediated or neuroproliferative, however CO_2 fractional laser (MonaLisa Touch) via a flat probe applied externally to the vestibule has been found to be useful in a pilot study.

Study Design and Outcomes
A prospective, double-blind, sham-controlled investigator-initiated research project was developed to examine the safety and efficacy of CO_2 fractional laser delivery to the vestibule in women with vestibulodynia using, for the first time, prospective vulvoscopic photographs from the 3 sites as primary efficacy outcome.

Methods
Subjects with vestibulodynia were randomly assigned to active or sham procedure 2:1. Adverse events were recorded. Vulvoscopic photos were objectively assessed by the Vulvoscopic Genital Tissue Appearance Scale at baseline and follow-up visits, including sham treatments, to document changes. Secondary objectives included changes on multiple validated instruments: Female Sexual Function Index, Female Sexual Distress Score, McGill Pain Score, Vulvar Pain Functional Questionnaire, Pain Catastrophization Scale, Oâ€™Leary/Sant Voiding and Pain Indices, pain scale on Q-tip test and sexual function by subject diary. Subjects meeting inclusion/exclusion criteria received one treatment cycle of active treatment or sham, consisting of 3 treatments, each 4 weeks apart. At the first follow-up visit at 12 weeks subjects were unblinded and those assigned to sham were crossed over to active treatment. Follow-up visits occurred 12 weeks and 4 months after the start of active treatment. Laser settings were energy 1 - 20 power W, dwell time 1000 us, spacing 1000 um, emission mode SP, smart stack 1, number of passes 1; or energy 2 - 30 power W, dwell time 1000 us, spacing 700 um, emission mode DP, smart stack 2, number of passes 1, at the discretion of the investigator.

Results
This is an interim analysis of an on-going trial. Data are from the first 20 completers, with a focus on the primary efficacy outcome, prospective vulvoscopic photographic images. Compared to baseline, there was no improvement in any subject receiving sham treatments. Compared to baseline, vulvoscopic improvement was noted in 38% of cases after active treatment, as well as improvement on secondary endpoints.

Conclusions

The interim analysis in this 3-site prospective double-blind, sham-controlled pilot study suggests that the CO_2 fractional laser is safe and efficacious in the treatment of vestibulodynia.

Acknowledgments/Disclosures

(43) Pulsed Radiofrequency Ablation: A Novel Treatment for Post-Operative Vulvar Neuropathy

Nancy Vaughns[1], Elizabeth Gelner[2], Alan Gehrich[3], John Vogel[4]; [1] Department of Obstetrics and Gynecology, Darnall Army Medical Center,[2] Department of Obstetrics and Gynecology, Madigan Army Medical Center,[3] Department of Obstetrics and Gynecology, Tripler Army Medical Center,[4] Department of Pain Management, Tripler Army Medical Center
Presented By: John Vogel DO

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective
Vulvar neuropathy is a known complication of many gynecologic surgical procedures, particularly incontinence procedures. Some case series describe rates as high as 9.4% following tension free mid-urethral sling procedures for stress incontinence. Research regarding treatment options for patients suffering with severe postoperative neuropathic pain in these cases is limited. This case report evaluates the effectiveness of a novel treatment of postoperative neuropathic pain following transvaginal tape (TVT) procedure utilizing pulsed radiofrequency ablation (RFA).

Study Design and Outcomes
A 41 year old postmenopausal female underwent an uncomplicated TVT procedure for severe stress urinary incontinence and was discharged home the same day. In the first 24 hours following surgery, she developed an increasingly severe debilitating stinging and burning sensation over a 2x 3cm area of skin on her left mons and superior labia majora below the left suprapubic TVT site. The patient’s symptoms worsened with hip flexion and extension making walking difficult.

Methods
At the first return visit following surgery, the patient was treated with a local lidocaine infiltration of the vulva. This effectively treated the pain temporarily but it returned within 4 hours of the injection. She underwent a trial of gabapentin treatment plus topical 4% lidocaine cream with reduction of pain from 10 out of 10 to 7.5 out of 10. At 3 weeks postoperatively the pain remained significantly debilitating and she was referred to the pain service for further evaluation and treatment. She received a diagnostic ultrasound guided ilioinguinal block. This procedure effectively treated her pain to a level of 0-1/10, but within 3 days the pain returned to pre-treatment levels. A confirmatory ilioinguinal block was then performed, and she once again endorsed several days of complete resolution of her pain, confirming the involved nerve. The patient was a poor candidate for pulsed RFA of the peripheral nerve due to her body habitus and attendant difficulty in achieving direct visualization of the target nerve. Therefore the patient underwent pulsed-RF treatment of the left T12 & L1 dorsal root ganglions

Results
She had complete relief of pain following the procedure which lasted 4-5 hours before it returned at lower intensity for the remainder of the day of the procedure. The following day, however she was pain free and has had no recurrence of pain out to 18 months.

Conclusions
Nerve injuries to the external female genitalia can often be difficult to diagnose and treat due to complex overlapping sensory innervation. Sensory innervation of the vulva can be supplied by the pudendal nerve, branches of the genitofemoral and ilioinguinal nerves, and also the perineal branch of the posterior femoral cutaneous nerve. When considering neuromodulation options for neuropathic pain, the specific nerves involved must be identified so that treatment can be targeted to those nerves or nerve roots providing sensory innervation using diagnostic nerve blocks.
Once the involved nerves are identified, RFA of either the peripheral nerve or dorsal root ganglion (DRG) of the corresponding nerve root can be performed. In this patient the ilioinguinal nerve could not be directly visualized. Visualization of the nerve is not required for the diagnostic nerve block which is done in the fascial plane between the internal oblique and the transversus abdominus. For RFA however, the needle must be placed very close to the nerve. Therefore the T12 and L1 DRGs were selected for the RFA.
Radiofrequency ablation (RFA) is a procedure that uses electrical current to treat a wide variety of chronic pain conditions. Radiofrequency energy can be applied in a continuous (CRF) or intermittent manner, known as pulsed radiofrequency ablation (PRF). CRF causes well-circumscribed thermocoagulation of the nerve and tissue immediately adjacent to the radiofrequency needle tip at temperatures of 60-90Â°C, according to the device settings. However the use of CRF is limited by potential motor deficits in mixed nerves and patients may develop deafferentation pain after the procedure.
PRF was developed as a less destructive alternative to CRF, and involves application of electrical current in short bursts. PRF is performed at low temperatures (â‰¤ 42Â°C) which is minimally damaging to nerves, but adequate to modulate pain transmission. The mechanism by which PRF provides pain relief is poorly understood, but is thought to be a neuromodulatory effect resulting from pulsed electrical fields causing sensory neuron-specific gene expression and neuronal desensitization. There are few studies evaluating the effectiveness of PRF for treating pain; predominantly small cohorts of patients with axial low back pain.
Pulsed radiofrequency ablation has been documented to treat pain from ilioinguinal nerve injuries following inguinal herniorrhaphy and for idiopathic pudendal neuralgia, but there is currently no literature regarding its use for post-operative neuropathic pain following TVT/TOT procedures. This case demonstrates its efficacy for the management of this relatively common complication. Unlike sling removal, which is often ineffective and may result in recurrent incontinence, pulsed RFA has been shown to be efficacious here in treatment of peripheral neuropathies while maintaining the benefits of the sling for SUI. For patients suffering from peripheral neuropathy following a sling procedure, this treatment can provide long term pain relief without compromising their continence.

Acknowledgments/Disclosures
None

(44) The Effect of Exercise on Dyspareunia among University Students in Turkey

Irem yapar[1], Furkan Keskin[2], Deniz Aslan[3], Ayca Aklar Corekci[3], Rukset Attar[4]; [1] Yeditepe University Faculty of Medicine,[2] Maltepe University Faculty of Medicine,[3] Yeditepe University, Health Sciences Faculty, Physiotherapy and Rehabilitation Department,[4] Yeditepe University, Medical School, Department of Obstetrics and Gynecology
Presented By: Irem Yapar

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective
Dyspareunia is defined as presence of recurrent or persistent genital pain right before, during or after sexual activity. The prevalence of dyspareunia is approximately 10% to 20% in U.S. women, with the leading causes changing by age group. Recent studies show that exercise causes decrease in pain perception via nociceptive mechanisms. Therefore, we hypothesized that exercise may have an effect on dyspareunia. For this purpose, we compared the severity of dyspareunia with exercise habits among 292 female university students. To the best of our knowledge, this is the first study which investigates the relationship between exercise and dyspareunia.

Study Design and Outcomes
This study was performed with 292 female university students with dyspareunia (292F; 20.92Â±1.84) in Istanbul, Turkey. The subjects were asked to complete a structured questionnaire, which included demographic characteristics, exercise habits and the level of dyspareunia.

Methods
10 pint Likert type Visual Analog Scale (VAS) was used to assess the level of dyspareunia. As pain perception differs due to the pain tolerance of individuals, subjects were also asked to give a value on the VAS scale for the highest level of pain that they could resist. Data were analyzed by using the Statistical Package of Social Sciences, version 25.0. Independent T test was used to compare the mean levels of dyspareunia between students who exercise or who do not exercise.

Results
Among 292 female students with dyspareunia, 144 were doing exercise and 148 were not doing exercise. Statistical analysis of 292 female students showed that the mean VAS was 0.84Â±1.66 in the exercising group, and was 0.88Â±1.91 in the non-exercising group. The severity of dyspareunia was higher in the non-exercising group. However the difference was not statistically significant ($p>0.05$).

Conclusions
In this study we found that there is an increase in the severity of dyspareunia in non-exercising group compared to exercising group. However, the difference was not statistically significant. Yet, we believe that exercise may be effective in the management of dyspareunia if proper exercises are done under professional guidance of pelvic floor specialists.

Acknowledgments/Disclosures
Keywords: Dyspareunia, Exercise, Visual Analogue Scale (VAS), Female

(45) Hyper-mobility Findings in Subjects with Chronic Pelvic Pain

Dr. Gisela Chelimsky[1], Jefferson De Los Santos[1], Dr. Frank Tu[2], Dr. Jeffrey Janata[2], Crystal O'Hara[1], Dr. Thomas Chelimsky[1]; [1] Medical College of Wisconsin,[2] Northshore,[2] Case Western
Presented By: Dr. Thomas Chelimsky

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective
Does hyper-mobility Ehlers-Danlos syndrome (h-EDs) have a role in myofascial pelvic pain and/or interstitial cyctitis? Many chronic overlapping pain conditions such as functional gastrointestinal disorders are thought to be associated with hypermobility Ehlers-Danlos syndrome (h-EDS). The data regarding chronic pelvic pain and h-EDS are limited.

Study Design and Outcomes
This is a prospective IRB approved study at the Medical College of Wisconsin. Interstitial Cystitis-Examination of the Central Autonomic Network (ICECAN) is a multicenter, prospective crossover design, randomized study funded by NIH-NIDDK, evaluating women with interstitial cystitis / bladder pain syndrome (IC/BPS), myofascial pelvic pain (MPP) and healthy control subjects (HC).

Methods
This study aims to recruit 60 subjects with IC/BPS, 60 with MPP, and 60 age matched HC. Part of this evaluation includes an examination for h-EDS based on the latest criteria [Malfait F, Am J Med Genet C Semin Med Genet. 2017]. We measured the Beighton score in females with IC/BPS-MPP and heathy controls. A significant Beighton score for their age, led to assessment of all other criteria.

Results
In this preliminary study, we enrolled 9 IC/BPS, 5 MPP, and 9 healthy controls. No subject met current criteria for h-EDS.

Conclusions
Although this study only comprises a convenience sample of preliminary data in 23 subjects, we were surprised to find that not even one met criteria for h-EDS, given a possible prevalence of up to 5% in the general population [Tinkle et al. 2017]. We conclude that these early data do not support a role for h-EDS in these two chronic pelvic pain syndromes. Enrollment of more subjects will confirm these findings.

Acknowledgments/Disclosures
This abstract was also submitted to the hyper-mobility meeting that took place in Ghent.

(46) Biochemical Changes Associated with Localized Provoked Vestibulodynia: A global metabolomics study

Jennifer Labus[1], Charlotte Van Remortel[1], Kasia Broniowska[2], Jean Stains[1], Emeran Mayer[1], Andrea Rapkin[1]; [1] UCLA,[2] Metabolon
Presented By: Andrea Rapkin

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective
Identify biochemical alterations in plasma and vaginal fluid in women suffering from provoked vestibulodynia (PVD) as compared to healthy control (HC) population.

Study Design and Outcomes
Samples of plasma and vaginal fluid, obtained using vaginal swabs during the follicular phase, 5-7 days post menstrually, were collected in HC and premenopausal women with PVD. The diagnosis of PVD was identified during a clinical examination. Inclusion criteria for patients with PVD included least 6 months of vulvar vestibular pain at least 4 out of 10 in severity during intercourse and other activities involving vestibular pressure (e.g. tampon use) and findings on exam consistent with vestibulodynia. The sample consisted of 106 vaginal (HC=50, PVD=56) and 112 plasma (HC=50, PVD=62). Untargeted metabolomic profiling was performed using Metabolon's global metabolomics platform. The dataset comprised a total of 824 compounds of known identity (named biochemicals) in plasma, and 952 named biochemicals in vaginal swabs. Pain was assessed via cotton swab test, vulvar algesiometer while internal muscle tenderness was tested with 2 kg of finger pressure calibrated by algometer prior to examination. We also recorded diet using the Dietary Health Questionnaire II, Past year, with portion size, body mass index (BMI), use of prescription hormonal contraceptives and probiotic intake.

Methods
Following log transformation and imputation of missing values, if any, with the minimum observed value for each compound, Welch's two-sample t-test was used to identify biochemicals that differed significantly between PVD and HC. The q-value describes the false discovery rate; a low q-value ($q < 0.10$) is an indication of high confidence in a result. Spearmanâ€™s correlation was used to correlated pain and muscle tenderness with metabolites demonstrating group differences in concentrations. Fisher's exact test was applied to test for differences in hormonal contraception intake, diet, BMI and probiotic use.

Results
Hormonal contraceptive use was not statistically different between groups (vaginal samples, HC =26%, PVD= 20%, p=.49; plasma samples, HC 26%, PVD=16%, p=.25). Also, no group differences in BMI, diet, or probiotic use (p's >.05) were observed. Although samples differed in a number of metabolic readouts including changes in sphingo- and phospholipid metabolism, and tryptophan metabolism, this report is limited to presentation of steroid hormones. We observed lower plasma levels of steroid hormones, including pregnenolone (e.g. 17alpha-hydroxypregnenolone 3-sulfate, fold change (FC) PVD/HC= 0.56, p=.002, q=0.11; pregnenediol disulfate ($C_{21}H_{34}O_8S_2$)*, FC= 0.69, p=0.00006, q=0.012) , progestin (e.g. 5-alpha-pregnan-

3beta,20alpha-diol disulfate, FC=0.16, p=.03, q=.07), and androgenic steroids (e.g. 16a-hydroxy DHEA 3-sulfate, FC=.22, p=0.006, q=0.029) in PVD group relative to healthy control population. Importantly, a number of these biochemicals were also detected in vaginal swab samples and showed similar decreases.

Vaginal levels of levels of pregnenolone, progestin , and androgenic steroids revealed medium effect size correlations with pain evoked during the cotton swab test (e.g., 17alpha-hydroxypregnenolone 3-sulfate [10 o'clock, r= -0.36,p=.004; 6 o'clock, r = -0.28,p=.03, pregnenediol disulfate (C21H34O8S2)* r=-.41, p=.001; 5-alpha-pregnan-3beta,20alpha-diol disulfate, 10 o'clock, r= -0.32,p=.011]. Only plasma levels of pregnenolone steroids showed similar associations with evoked pain [(e.g., 17alpha-hydroxypregnenolone 3-sulfate [6 o'clock, r = -0.39,p=.001]) Plasma levels of a few pregnolone and androgenic steroids correlated with muscle tenderness scores (e.g., 17alpha-hydroxypregnenolone 3-sulfate (Perineal Complex 6 o'clock, r= 0.31,p=0.017, Levator 6 o'clock pain right =.26, p=0.049, rleft=.34,p=.008). Vaginal (but not plasma) levels of progestin and androgenic steroids were also negatively correlated with pain at 6 o'clock obtained with the vulvar algesiometer (e.g., androstenediol-3beta-17beta-disulfate-1 [6 o'clock, r= -0.35, p=.02]; pregnanediol-3-glucuronide [6 o'clock, r = -0.32, p=.02]). No plasma steroid levels were associated with pain at 6 o'clock but associations with other vulvar locations were present.

Conclusions

In the current study we observed lower plasma and vaginal levels of steroid hormones in PVD relative to HCs. These changes in androgens could be related to increased production of sex hormone binding globulin, which can decrease the circulating levels of androgenic steroids. Mucin-secreting vestibular glands express high levels of androgen receptors; thus, changes in steroid hormones observed in PVD group could affect mucin formation. Because progesterone and progesterone metabolites (not measured in the current dataset) can modulate pain perception, the changes detected in plasma and in vaginal fluid could also result in mechanical allodynia. Taken together, alterations in steroid hormones observed in samples collected from PVD group could directly affect vaginal mucosa and modulate nociception.

Acknowledgments/Disclosures

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(47) Patient continuation rates of vaginal diazepam/baclofen suppository muscle relaxants for spastic pelvic floor syndrome

Ashley Gubbels[1], Nina Zook[2], Avory McHenry[3], Monika Dangeti[2], Michael Simhachalam[2], Mario Castellanos[1], Michael Hibner[1]; [1] St Joseph's Hospital and Medical Center,[2] Creighton University School of Medicine,[3] Creighton University School of Medicine-Phoenix Integrated Residency in OBGYN
Presented By: Ashley Gubbels

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective
To determine the continuation rate of vaginal diazepam/baclofen suppository muscle relaxants as an indicator of symptomatic benefit in patients with spastic pelvic floor syndrome (SPFS)

Study Design and Outcomes
A retrospective cohort study was designed including patients diagnosed with SPFS who filled at least one prescription for vaginal diazepam/baclofen suppository muscle relaxants 2015-2017. We then evaluated the continuation rates of patients who completed the initial prescription.

Methods
Patients who were prescribed diazepam/baclofen 2015-2017 were collected through our electronic medical record. The Arizona Controlled Substance Monitoring Program was consulted to obtain information regarding filled prescriptions. Patients who were prescribed but did not fill the initial prescription were excluded from the study. Data on remaining patients was collected including demographics, pain characteristics from the International Pelvic Pain Society Pelvic Pain Assessment form, dosage, duration of use, and reason for discontinuation if noted.

Results
Of 340 patients identified in this pilot study, 229 (67.4%) filled their initial prescription. Of those who filled an initial prescription, 95 (41.5%) requested a refill. The mean number of refills was 4.85.6. In this group, the mean duration of use was 1.00.9 years. Fifteen percent of these patients underwent a dosage increase. When evaluating quality of pain symptoms, patients who refilled their prescription reported higher levels of throbbing (1.77+/-1.11 vs 1.38+/-1.17, P=0.015). Of the eight qualities evaluated, this was the only significant symptom. Patients with difficulty passing urine were more likely to refill their prescription (p=0.093) compared to those without difficulty passing urine (51.4 vs 39.3%). Those who reported incomplete bladder emptying were significantly more likely to refill a prescription (51.6 vs 36.9%, P=0.031). Patients who refilled prescriptions were older on average (p=0.078) and had higher initial (p=0.013) and average VAS scores (p=0.012).

Conclusions
Our initial pilot study showed that 41.5% of patients who fill an initial prescription for vaginal diazepam/baclofen suppositories will request a refill. This is a positive finding as Crisp et al in 2013 did not find subjective or objective improvement in patients treated with vaginal valium. Patients with voiding difficulty and incomplete bladder emptying were more likely to request a

refill. Those who refilled prescriptions also had a higher initial and average VAS score. A higher number of patients than clinically expected did not fill the initial prescription which we expect is due to associated out of pocket expense as compounded suppositories are generally not covered by insurance. Subsequent data analysis will evaluate the reasons patients did not pursue refill or discontinued therapy.

Acknowledgments/Disclosures

(48) On-line Survey Pilot Study of Vulvodynia Pain Characteristics

Judith Schlaeger[1], Marie Suarez[1], Heather Pauls[1], Alana Steffen[1], Keesha Roach[1], Tonda Hughes[1], Diana Wilkie[2]; [1] University of Illinois at Chicago College of Nursing,[2] University of Florida College of Nursing
Presented By: Judith M. Schlaeger, PhD, CNM, Lac

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective
Vulvodynia (vulvar pain and dyspareunia) is difficult to treat because of insufficient characterization. We determined the feasibility of an Internet-based study to characterize vulvodynia pain.

Study Design and Outcomes
An online pilot survey of women with vulvodynia was conducted from November 2016 to January 2017. The sample (N=60) aged 18 to 45 years (32.7Â±5.5 years) completed the valid/reliable PAIN Report (computerized McGill Pain Questionnaire) and the Female Sexual Function Index pain subscale (FSFIp).

Methods
We examined relationships among number of pain sites, pain intensity, and FSFIp scores and differences in FSFIp scores by 7 pain pattern groups.

Results
All 60 women completed >90% of the survey questions. 56 women reported 1-14 pain locations (mean 2.4Â±1.3) and 4 women had missing data; including vulvar (90%), upper thigh (63%), coccyx (62%), pelvic (53%), sacral iliac (53%), and sacrum (48%). On a scale of 0 (no pain) to 10 (pain as bad as it could be), the mean score for average pain intensity (API, average of pain now, least, and worst in the past 24 hours) was 6.1Â±2.4. Mean FSFIp score was 1.2Â±1.2. Correlations between FSFIp (0=did not attempt intercourse, 1=severe pain with sexual intercourse, and 5=almost never or never have pain with intercourse) and pain variables were: 1) number of pain sites, r= Â0.33, p=.01; 2) pain now, r= 0.09, p=.51; 3) least pain in last 24 hours, r= -0.22, p=.09; 4) worst pain in last 24 hours, r= -0.34, p=.009; and 5) API r= -0.24, p=.07. Main effects of ANOVA showed significant differences in FSFIp among 7 pain pattern groups (F(6)=2.91, p < .02). The group with continuous, intermittent and transient pain patterns had lowest mean FSFIp score (.08Â±.57) of 7 pain pattern groups.

Conclusions
Women reported severe vulvodynia pain in multiple sites. As the number of pain sites and pain scores increased, dyspareunia increased and sexual function decreased. Women with continuous, intermittent and transient pain patterns had the most pain with intercourse and often reported no intercourse. If replicated in a larger study, providers should assess number of pain sites and pattern of pain in conjunction with intensity of dyspareunia to determine intervention strategies.

Acknowledgments/Disclosures
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(49) Heart Rate Variability and Gastric Myoelectric Activity in Women with Chronic Pelvic Pain: A Pilot Study

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Presented By: Candida Ustine

Saturday, October 20, 2018
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Objective
Research has shown that factors that impact parasympathetic (PNS) activity systematically impact gastric myoelectrical activity. We recently showed poorer PNS function in individuals with chronic pelvic pain (CPP) disorders from a supine to upright position. The following pilot study sought to examine if poorer autonomic function, marked by maladaptive patterns in PNS activity, is accompanied by maladaptive gastric myoelectric activity in those with CPP.

Study Design and Outcomes
A sample of 111 women (36 health controls (HC); 75 CPP) were placed in a supine (10 minutes), an upright (tilted 70Â° head up; 30 minutes), and back to supine (10 minutes) positions. High-frequency heart rate variability (HF-HRV; 0.15-0.4 Hz) was measured at each time point as an index of PNS activity. As tachygastria should increase along with decrements in HRV from supine to upright, our results suggest poorer physiological activity in CPP individuals from both a cardiovascular and gastric standpoint.

Methods
High-frequency heart rate variability (HF-HRV; 0.15-0.4 Hz) was measured at each time point as an index of PNS activity. Electrogastrography (EGG) was used to assess gastric myoelectric activity pre- and post-upright tilt. EGG measures from 47 women (16 healthy; 31 CPP patients) were available for analysis and included relative percentage of gastric activity within the normal (2-4 cpm) and tachygastria (4-10 cpm) ranges, in addition to a ratio between the two (normal/tachy).

Results
HF-HRV was lower in CPP individuals at all-time points (each $p < .05$). CPP individuals also showed a lesser decrease in HF-HRV from supine to upright, and poorer HF-HRV recovery from upright back to supine, as compared to HC ($F(1,106) = 4.62$, $p = .034$). The CPP group showed no change in tachygastria activity from pre-upright to post-upright ($t(30) = -0.62$, $p = .537$), whereas HC showed an increase in tachygastria activity ($t(15) = -2.09$, $p = .054$). No pre-post differences were found for either group in normal gastria or the normal/tachy ratio.

Conclusions
Overall, as tachygastria should increase along with decrements in HRV from supine to upright, our results suggest poorer physiological activity in CPP individuals from both a cardiovascular and gastric standpoint. Implications, limitations, and future directions will be discussed.

Acknowledgments/Disclosures
This abstract was also submitted to AAS

(50) Pelvic Sensitivity and Sexual Function in Women with Dysmenorrhea

Alex Randall[1], Frank Tu[1], Folabomi Oladosu[1], Ellen Garrison[1], Nicole Steiner[1], Genevieve Roth[1], Kevin Hellman[1]; [1] NorthShore University HealthSystem
Presented By: Alex Randall

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective

Dysmenorrhea is the leading risk factor for chronic pelvic pain (CPP) conditions, including dyspareunia and bladder pain syndrome (BPS), two disorders that are frequently comorbid. We have previously identified a cohort of women with dysmenorrhea that report bladder pain sensitivity (DBS), and hypothesized that DBS participants may have pelvic floor dysfunction and impaired sexual function similar to that observed in women in BPS. To test this hypothesis, we compared findings from a battery of tests assessing pelvic and bladder pain sensitivity in dysmenorrheic women without bladder pain sensitivity (DYS), women with DBS, healthy controls (HC), and women with BPS.

Study Design and Outcomes

Reproductive-aged women provided written consent to participate in an IRB approved cross-sectional study to evaluate the association of pelvic sensitivity and sexual function with menstrual and bladder pain.

Methods

Participants with moderate to severe menstrual pain (>4 on 0-10 numerical rating scale [NRS]) completed noninvasive bladder-filling task, where they ingested 20 ounces of water and were instructed to rate their bladder pain at various urgency levels. Dysmenorrheic participants were classified as DBS (n=33) if they reported pain >15 on a 0-100 visual analog scale (VAS) at first urge to void. Dysmenorrheic participants without bladder sensitivity were classified as DYS (n=107). After sub-categorization, a series of exams and questionnaires were administered to all participants in order to examine the association with bladder pain sensitivity with pelvic pain and sexual function. To evaluate pelvic floor muscle tone, participants underwent a structured pelvic exam conducted by a fellowship-trained gynecologist who was blinded to participant's group. To evaluate vulvar tenderness, participants rated their pain using NRS after tampon insertion and removal. To evaluate differences in sexual function, sexually active participants completed the FSFI questionnaire. An ANOVA was used to compare group differences between pelvic exam characteristics, tampon pain scores, and FSFI scores. Data was represented as average Â± standard error.

Results

DBS participants had pelvic floor muscle tone, pelvic flexibility, and pelvic relaxability comparable to DYS and HC (p's >0.1). DBS participants with had slightly higher pelvic exam pain (1.1 Â± 0.3, NRS) compared to participants with DYS (0.5 Â± 0.1; p =0.007) and HC (0.3 Â± 0.1; p=0.001). Participants with BPS had even further heightened pelvic exam pain (3.1Â± 0.6) compared to healthy controls (p's < 0.001). A similar pattern of pain phenotypes were observed for dyspareunia, such that DBS participants had marginally more pain during sex (22

Â± 5, VAS) compared to DYS (12 Â± 3; p= 0.054), but significantly more pain than HC (5 Â± 3; p =0.005). Despite these differences, DBS participants had comparable FSFI scores (74 Â± 2.4) to participants with either DYS (77 Â± 1.2; p=0.256) and HC (76.2 Â± 2.0; p=0.467). In comparison, participants with BPS had lower FSFI scores (57.6 Â± 4.0) than DBS (p < 0.001).

Conclusions

Increased pelvic floor sensitivity and dyspareunia are associated with worsened bladder pain and in women with DBS. Thus, pelvic floor sensitivity and muscle function may play a critical role in the comorbidity of dysmenorrhea and bladder pain. Multiple factors besides pain contribute to sexual dysfunction and are not yet completely altered in women with DBS. Interventions that reduce pelvic floor sensitivity are a relevant target for preventing the transition from DBS to BPS.

Acknowledgments/Disclosures

This study was funded by NIDDK DK100368

(51) Randomized, Double-blind, Placebo-Controlled Multicenter Study to Evaluate Efficacy and Safety of Ospemifene in Patients with Moderate to Severe Vaginal Dryness, Including Evaluation of Vulvar Health by Photographic Images

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Presented By: Irwin Goldstein

Saturday, October 20, 2018
Presentation Time: 2:50 PM - 3:20 PM

Objective

Vulvovaginal atrophy (VVA), a symptom of genitourinary syndrome of menopause, results from atrophy of vaginal epithelium. Ospemifene is an oral, selective estrogen receptor modulator already FDA-approved approved for moderate to severe dyspareunia in menopause.

Study Design and Outcomes

Ospemifene was now evaluated in a phase 3 clinical trial in menopausal women with the most bothersome symptom (MBS) as moderate to severe vaginal dryness. The overall objective was to demonstrate safety and efficacy of 60mg ospemifene daily in treatment of vaginal dryness due to VVA. Vulvar photography was used for the first time as an innovative assessment of vulvar health in this study. Photographic assessments of VVA performed during this study are reported herein.

Methods

Postmenopausal women age 40-80 with moderate to severe vaginal dryness as MBS of VVA were randomized 1:1 to ospemifene 60 mg or placebo daily. Co-primary efficacy endpoints included change from baseline to week 12 in parabasal/superficial cells, vaginal pH, and severity of vaginal dryness. Secondary endpoints were vaginal health index (VHI), vulvar health index (VuHI), and optional vulvovaginal photographic imaging assessment of clitoris size, labia majora/minora loss, urethral glans prominence, introital stenosis/pallor/ erythema/moisture, mucosal inflammation, and other findings including petechiae, excoriation, and ulceration.

Results

631 subjects were included in the intention-to-treat population (ospemifene=316; placebo=315). Differences between treatment groups in change from baseline to Week 12 for co-primary endpoints were all statistically significant ($p < 0.0001$). The difference between treatment groups in least square (LS) mean change from baseline in VHI total score was 2.5 at Week 4, 2.9 at Week 8, and 2.8 at Week 12 (all $p < 0.0001$), with greater improvement in the ospemifene group. The difference between treatment groups in LS mean change from baseline in VuHI total score was 0.8 ($p = 0.0002$) at Week 4 and 1.1 to 1.2 at Weeks 8 and 12 (both $p < 0.0001$), again indicating better vulvar health in the ospemifene group. The difference between treatment groups in LS mean change from baseline in photographic vulvovaginal imaging total score was 1.0 ($p = 0.0118$) at Week 12, with lower values of the ospemifene group indicating better vulvovaginal health by photograph.

Conclusions

Ospemifene was safe and effective treating dryness as MBS in postmenopausal women with VVA symptoms. The increase in VHI score, decrease in VuHI score and decrease in vulvovaginal total imaging score confirm the improvement of VVA by photographic evaluation consistent with improvement of vaginal dryness.

Acknowledgments/Disclosures

Consultants to Duchesnay: Irwin Goldstein, James Simon, Andrew Kaunitz, Employees Shionogi: Corrado Altomare, Yuki Yoshida, Julie Zhu, Employees Duchesnay: Sam Schaffer, Graziella Soulban

(52) Ecological Momentary Assessment: a Useful Contextual Tool for 24-hour Heart Rate Variability

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Presented By: Lisa Conant

Saturday, October 20, 2018
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Objective

The related chronic pain, voiding dysfunction, sleep deprivation and autonomic dysregulation symptoms of Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) and Myofascial Pelvic Pain (MPP) reduce quality of life, suppressing both social well-being and physical function. Given the interruptions to daily life of IC/MPP symptoms and the unique protective role of daily positive mood in future disease risk (Beckett, et al., 2014; Lewandowski, et al., 2010; Palermo, et al., 2012; Suskind, et al., 2013), an ecological momentary assessment (EMA) approach is needed to cull the unique psycho-physiological pathways for these processes.

Study Design and Outcomes

Interstitial Cystitis-Examination of the Central Autonomic Network (ICECAN), an IRB-approved, multicenter, prospective, crossover-design, randomized study based at the Medical College of Wisconsin funded by NIH-NIDDK, will evaluate 60 women with IC/BPS, 60 women with MPP and 60 age-matched healthy control female subjects (HC). The study posits that changes in autonomic state (as reflected in high frequency heart rate variability - HRV) drive changes in the pelvic pain experience. To test this hypothesis, we expect to find that HRV changes will precede pain flares in both IC/BPS and MPP.

Methods

We developed an EMA questionnaire to provide maximal contextual accuracy for the HRV changes and to understand the interactive links among daily and weekly fluctuations in pain flares, momentary moods, and shifts in ambulatory-assessed HRV (i.e., autonomic cardiac control by way of vagal withdrawal) Over one 24-hour period each week for 24 consecutive weeks, the study continuously monitors HRV while the EMA is completed every 85 minutes during waking hours to assess: 1) daily activities (e.g., voiding, socializing, working, resting/napping), 2) general and domain-specific measures for pelvic pain, non-pelvic pain, and urinary urgency, and 3) stress levels and emotional states sampled from all four quadrants of the affective circumplex (i.e., positive high arousal, positive low arousal, negative high arousal, negative low arousal states) using an Android handheld device (Nexus S5).

This collection will result in a large quantity of data (180 subjects with 24 weekly EMA responses with a typical day including 10-13 questionnaires with 66 questions each), about 52,000 EMA questionnaires or 3.5 million individual data points. We also assess the response and completion rates and expect the response rate to the EMA surveys to be >95%. So far, respondents on average have taken less than five minutes to complete each EMA survey. We present here the data spread and variability for a completed participant, and how we might put this vast amount of EMA data into a useful analysis pattern across the 2,160 EMA surveys currently completed. For the current study, EMA measures can be operationalized in two ways: as a momentary assessed experience (assessed for each EMA assessment period), and the average amount of that experience aggregated per participant, per measurement day, at specific times of the day factored by when critical events do or do not occur, e.g., daily/ weekly presence/intensity of voiding episodesâ€™/pain flares. Descriptive statistics and correlations among this momentary data utilize a breakdown of EMA emotion states along the dimensions of valence [pleasant and unpleasant] and arousal [activated] as well as the prevalence and intensity of pelvic pain, non-pelvic pain, and urinary urgency within days and across the 24-week protocol.

Results

Averaging momentary affect and intensity of pelvic pain, non-pelvic pain, and urinary urgency respectively for one pain-flare day and one non-flare day for an individual patient show stable momentary mood scores across time within each state (flare or non-flare). There is a trend where positive affect scores are lower and negative affect scores are higher on the pain flare day. Tired and Worried appeared greater on the flare day pending statistical analysis. These factors may mediate the reduction in HRV.

Conclusions

Based on our communications with the subjects they seem willing to complete the EMA protocol, and seem to do so relatively quickly. We see no major barriers to completing the EMA protocol for the 24 week trial. Overall, the EMA variability imply meaningful data. Further work will require developing the right statistical approach to mine the large quantity of data and relate it meaningfully to the HRV record.

Acknowledgments/Disclosures

(53) Multimedia Education Programme for Women with Stress of Gynecological Examination

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Presented By: Alime BUYUK GONEN

Saturday, October 20, 2018
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Objective

Gynecologists have a professional obligation to educate patients before vaginal examination or therapeutic procedures. Typically, the education involves a description about what vaginal examination is with a physician or nurse. Such education before the intervention has been shown to be effective in increasing compliance, in reducing pain and discomfort during vaginal examination. However, several studies have shown that doctors have not enough time for this education because of their intensive work and busy schedules. Patients who are not informed about the intervention, feel anxiety and pelvic pain during their vaginal examination. The purpose of our study was to assess the effectiveness of patient education before vaginal-gynecological examination.

Study Design and Outcomes

This study is a prospective randomized, controlled trial enrolling 22 patients (aged between 18 and 50 years) who underwent gynecological examination. Outcomes of our study showed that STAI-I anxiety scores decreased significantly in the study group who had video based education before gynecological exam. Fear and anxiety VAS scores of vaginal examination was also significantly lower in the study group.

Methods

Participants were grouped as; Study (n = 11) who were informed about vaginal examination and Control (n = 11) who were not informed about vaginal examination. Information about vaginal examination was video based patient education programme. It contained pelvic anatomy and description about how to practice vaginal examination by gynecologists. Anxiety of the patients were assessed using State-Trait Anxiety Inventory I,II (STAI-I,II) and VAS. STAI is a commonly used measure of trait and state anxiety and it has 40 items, 20 items for assessing trait anxiety and 20 for state anxiety. Fear and anxiety of vaginal examination and pelvic pain of patients were assessed using VAS. The entire evaluation was repeated before and after the examination.

Results

The mean age of women was 45.68 Â± 9.53, the mean body mass index (BMI) was 28.40 Â± 5.64, the mean number of pregnancies was 2.5 Â± 1:47, the mean number of births 1.86 Â± 1.04 in the study participants (n = 22).
Educational status is 46.4% for primary school, 31.8% for high school, 22.7% for undergraduate and graduate.

Also, 54.5% of women had less than 10 and 45.5% had more than 11 gynecological examinations.
Pre-examination means scores of STAI-I; STAI-II; pain, anxiety and fear of vaginal examination VAS were 43.81 Â± 6.98, 50.90 Â± 7.72, 1.49 Â± 2.63, 3.60 Â± 3.91, 3.38 Â± 4.34 respectively.
After examination mean scores of STAI-I; pain, anxiety and fear of vaginal examination VAS were 42.73 Â± 5.82, 0.47 Â± 1.38, 0.54 Â± 1.09 and 0.86 Â± 2.00 respectively.
If we evaluate the comparisons between groups; there was no significant difference between the study and control groups in terms of age, BMI, number of pregnancies and number of births.
If we evaluate intra-group comparisons; mean scores of STAI-1, anxiety and fear VAS decreased significantly after the examination in the study group (p = 0.018, 0.028, 0.043, respectively).
Our study revealed that video based patient education programme benefits on decreasing patients' fear and axiety level.

Conclusions

The current study demonstrates that the addition of a multimedia interactive program to the process of patient education may allow women to feel less anxiety and more satisfaction during their gynecological examination.

Acknowledgments/Disclosures

There is no disclosure in this study.

(54) Multidisciplinary Assessment and Intervention Improves Pain-Related Functioning: Preliminary Evidence from the URMC Center for Chronic Pelvic Pain and Vulvar Diseases.

Donna Kreher[1], Rui Li[2], Shannon Smith[3], Ellen Poleshuck[1], Amy Benjamin[4], Susan Parker[4], Adrienne Bonham[4]; [1] URMC, Psychiatry and ObGyn,[2] URMC, Public Health Sciences,[3] URMC, Anesthesiology, Psychiatry and ObGyn,[4] URMC, ObGyn
Presented By: Donna Kreher, PhD

Saturday, October 20, 2018
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Objective
Pelvic and/or vulvar pain afflicts at least 14-24% of women during their reproductive years, is often underdiagnosed and undertreated, and is associated with significant psychological distress for many women. Prior research on chronic pain has repeatedly demonstrated the importance of cognitive factors in determining pain-related outcomes. In particular, pain catastrophizing, or the degree to which patients anxiously ruminate on their discomfort, is a known predictor of increased pain-associated disability and increased functional impairments. Additionally, more recent research has suggested that increasing patient's pain acceptance, and enhancing their engagement with valued domains, can significantly improve pain-associated outcomes. Behavioral interventions drawn from Acceptance and Commitment Therapy (ACT) as well as traditional Cognitive-Behavioral Therapy (CBT) have been used effectively in multiple chronic pain patient populations to target the cognitive factors associated with increased pain-related disability, but are underutilized and consequently under-assessed in the care of chronic pelvic and vulvar pain.

Our objective was to determine whether a multidisciplinary approach in which all new chronic pelvic and/or vulvar pain patients received at least one consultation with a clinical psychologist would significantly improve functional patient outcomes. In particular, we were most interested in whether this treatment approach would impact patient's pain catastrophizing and pain acceptance.

Study Design and Outcomes
This was a prospective observational cohort study including women receiving multidisciplinary care through the URMC Center for Chronic Pelvic Pain and Vulvar Diseases. Here we report findings from pilot data collected during the first 3 months of Center (October 2017-January 2018) for which complete data on all measures were available for 15 patients. Outcome measures included: average pain intensity (1-10 NRS), sexual functioning (Vulvar Pain Assessment Questionnaire; VPAQ), pain catastrophizing (Pain Catastrophizing Scale; PCS), pain acceptance (Chronic Pain Acceptance Questionnaire; CAQH), and pain interference (Brief Pain Inventory; BPI).

Methods
Beginning in October 2017, new patients referred to the Center received a standardized set of questionnaires at the initial visit, and every 3 months thereafter. During their initial visit, all new patients received a consultation with a clinical psychologist, a gynecological specialist, and a

physical therapist specializing in pelvic floor PT (except for patients who were already receiving pelvic floor PT elsewhere, who met with only the psychologist and gynecologist). Patients with high catastrophizing were identified as needing continued behavioral health (BH) treatment, and were instructed to follow up for additional BH interventions either through the Center or through local providers if patients were traveling long distances (whenever possible, specific referrals to local pain psychologists were provided). Patients with mild to moderate catastrophizing were provided with instruction in various cognitive and behavioral coping strategies during their initial consultation, and instructed to practice at home prior to their 3-month follow-up with the gynecologist, but were not scheduled for any additional BH appointments.

Results
At the time of their 3-month follow up, patients treated through the Center reported no significant change in average pain level or sexual functioning (VPAQ). Despite this, they had significantly reduced total PCS scores, significantly increased scores on the CAQH Activities Engagement Scale (a subscale of the CAQH that measures participation in valued activities despite pain), and significantly reduced pain interference.

Conclusions
Preliminary data from our multidisciplinary center indicate that, although patients are not reporting significant differences in average pain intensity or sexual functioning 3 months after initiating treatment, they are experiencing significant improvement in several outcomes known to be associated with pain-related disability and functional impairment. It is highly unlikely that the observed improvement in pain catastrophizing, pain acceptance, and pain interference is the result of overall symptom reduction given that patients did not report significantly improved pain. Rather, these findings suggest that patients are making use of the acceptance- and cognitive-based strategies provided by the clinical psychologist during the initial consult as well as during follow up care, and give further credence to the model of multidisciplinary care for chronic pelvic and vulvar pain.

Acknowledgments/Disclosures