

had never used tobacco (n=20, 67%). The most frequent comorbidities included asthma (n=19, 63%), anemia (n=17, 57%) and hypertension (n=18, 60%).

The median age of onset of bladder symptoms was 63 years (IQR 47,68) and the primary presenting symptom was most often incontinence (n=9, 30%), recurrent urinary tract infections (n=8, 27%) or Urgency/frequency (n=7 23%). The median maximum bladder capacity was 67 mL (IQR 30, 150). At presentation, imaging showed hydronephrosis in 33% (n=10) and VUR in 40% (n=12). Bladder pathology revealed inflammation in most (n=22, 73%), followed by ulcerated (n=15, 50%) or denuded epithelium (n=10, 33%); Eosinophilic cystitis was rare (n=4, 13%).

Median follow-up was 18 months (IQR 8,48). At time of the most recent clinical encounter, 25 (83%) patients had undergone urinary diversion. The median time from presentation to urinary diversion was 2 years (IQR 1,8). Age at onset was found to be correlated to proceeding to urinary diversion (p=0.01), however no significant correlation was found between need for urinary diversion and the length of symptom duration or bladder capacity.

**CONCLUSIONS:** In this cohort of patients with End Stage Chronic Cystitis, 83% ultimately required urinary diversion within 2 years of symptom onset. Age at onset was correlated with need for urinary diversion. Larger cohort studies are required to draw conclusions regarding factors predisposing to this severe phenotype.

Source of Funding: none

#### MP47-06 THE SERUM PROTEOME CORRELATES WITH CLINICAL PHENOTYPES OF UCPPS: A MAPP STUDY

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**INTRODUCTION AND OBJECTIVES:** The Multidisciplinary Approach to the Study of Chronic Pelvic Pain (MAPP) network is, to date, the largest cohort study of men and women with urologic chronic pelvic pain syndrome (UCPPS) followed over time. The MAPP network has identified clinically meaningful subtypes, or “phenotypes” of UCPPS. Herein we sought to correlate the serum proteome with specific phenotypes of UCPPS.

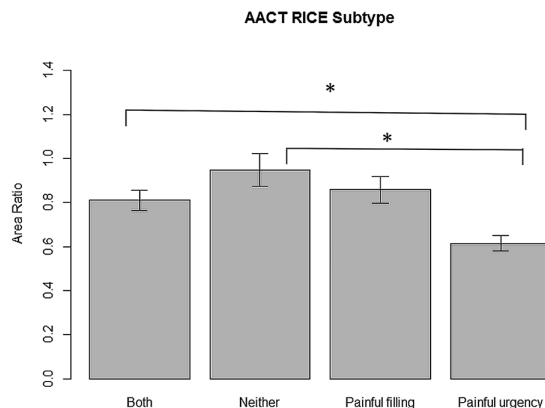
**METHODS:** We collected serum samples from 400 patients who participated in the MAPP network. Multiple reaction monitoring (MRM) is a mass spectrometry (MS) method that can target selective peptides for the detection and quantitation of a protein. We applied MRM-MS methods with a full suite of peptide standards for 72 pre-selected targeted proteins that are involved in many disease and inflammatory processes. Categories of study were control vs UCPPS vs positive control (those without pelvic pain but with other pain syndromes outside the pelvis). We then matched patients according to UCPPS characteristics such as pain severity, sex, pelvic pain vs. pelvic pain and beyond (widespread pain), and painful urgency/painful bladder filling. These were processed by MS and data were analyzed using MultiQuant 2.1 (ABSciex, Framingham, MA).

**RESULTS:** We found that proteins had significant differential expression across categories, including age, sex, cohort (control vs. UCPPS), and urinary severity. Alpha-1-antichymotrypsin (AACT) decreased significantly with painful filling and urgency (Figure 1). Although its role in UCPPS is unclear, it inhibits neutrophil cathepsin G and mast cell chymase, both of which can convert angiotensin-1 to angiotensin-2. Alpha-1-antitrypsin (A1AT), an inhibitor of serine proteases, and complement C5, a member of the complement cascade, followed the same pattern as A1AT. Vitamin D-binding protein (VTDB), which is involved in inflammation, also decreased with painful urgency. Alpha-2-macroglobulin (A2M) was similarly decreased in patients with pelvic pain and beyond (vs. pelvic pain only).

**CONCLUSIONS:** We find a distinct serum proteomic signature that occurs with painful urinary urgency. Our results suggest the potential for identifying subtypes of UCPPS in part using serum

biomarkers. These findings link clinical phenotypes with underlying biology in UCPPS.

Figure 1. Alpha-1-antichymotrypsin (AACT): An example of several proteins that decreased significantly with painful filling and painful urgency.



Source of Funding: none

#### MP47-07 COMPARATIVE VALUE OF CHRONIC URINARY TRACT INFECTION (UTI) DIAGNOSIS BETWEEN STANDARD CULTURE SENSITIVITY AND NEXT GENERATION SEQUENCE (NGS) IN URINE SAMPLES

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**INTRODUCTION AND OBJECTIVES:** The fast implementation of next generation sequence (NGS) technology in the field of urological infection may facilitate the comprehensive individual signature of most prevalent bacteria causing chronic UTI. Standard urine culture and sensitivity (C&S), although remaining as the gold standard of microbe identification, cannot detect a potentially aggressive microbial association of urinary microbiome in patients with UTI. This study aims to compare the accuracy of C&S versus (vs.) NGS.

**METHODS:** A prospective, feasibility, bi-institutional study was performed in 69 patients with chronic UTI. Urine samples were obtained through mid-stream catch and shipped to local lab for C&S and core lab of MicroGenDX for NGS test. Comparisons were performed for number of pathogens detected by both techniques and antibiotic resistance on standard blood agar vs. resistance genes using polymerase chain reaction (PCR). The correlation was sub-stratified in 3 degrees such as a complete match (CM), partial match (PM) and mismatch (MM).

**RESULTS:** Analysis revealed significant difference between the accuracy of C&S vs. NGS. In 19 culture-negative cases the NGS detected microbes in 17 patients. In total NGS identified a causative bugs for UTI in 67 of 69 patients. The only 2 cases otherwise were that NGS detected 0 and 1 pathogen while C&S detect 1 and 2 micro-organisms, respectively. While in 32 culture-positive cases only 1 pathogen was found in 21 patients and 2 microbes in 11 cases respectively, NGS was able to detect a microbial association of median 3 pathogens (range:1-12). There was a MM in 34 of 49 patients (p = .0013). In contrast, 6- PM and 9 CM between the testing methods. In 16 of the MM-cases, NGS was able to identify bacteria after C&S reveal no a low bacterial load with colony-forming units (CFU) < 50,000/ml. Regarding antibiotic resistance genes, of the 69 cases there had 44 MM, 10- PM and 15-CM between the testing methodologies (p = .0001).

**CONCLUSIONS:** Our results indicate that NGS provides more accurate data for determining the etiology of UTI. NGS sequencing is

superior to C&S in terms of pathogen detection being a highly sensitive tool to detect a few pathogens in every urine sample. This sometimes remained unclear which one contributes to the ensuing flare-up of UTI and thus more aggressive in each case. Although, the defining of resistance genes to different groups of antibiotics seems promising in antibiotic stewardship but warrant more robust clinical trials to prove.

**Source of Funding:** None

#### MP47-08 OPIOID PRESCRIPTION USE IN PATIENTS WITH INTERSTITIAL CYSTITIS

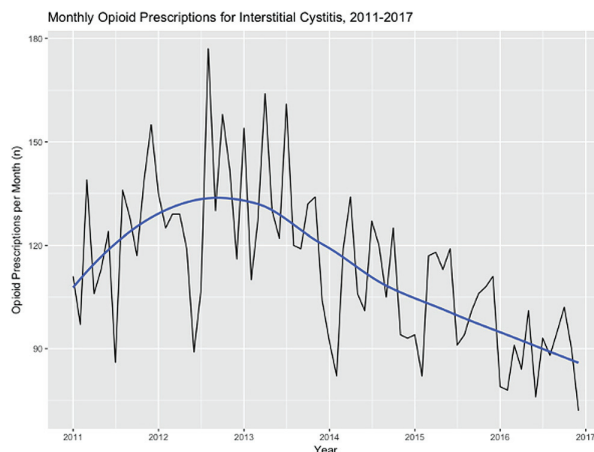
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**INTRODUCTION AND OBJECTIVES:** The opioid epidemic has been the recent focus of significant national initiatives to reduce the misuse of opioids and related addiction. Interstitial cystitis (IC) is a chronic pain state at risk for frequent narcotics use. Accordingly, we sought to assess narcotic prescription use in patients with IC through analysis of patient claims data.

**METHODS:** Data were accessed from the Virginia All Payers Claims Database (VAPCD), a dataset that includes medical and pharmacy claims from state residents insured through Medicare, Medicaid, and private commercial insurers. We identified female patients with diagnosis of IC from 2011-2017 using International Classification of Disease (ICD) codes 595.1 (ICD9) or N30.10 (ICD10). A patient identifier was used to link diagnosis claims with outpatient prescription claims for opioids by using generic product identifiers. We then analyzed opioid prescriptions within 30 days of a claim with IC diagnosis.

**RESULTS:** A total of 6,989 patients with an IC diagnosis were identified and were associated with 31,685 claims. Accordingly, the median number of IC claims per patients was 7 (IQR 3,21). Mean patient age was 48.6 (95% CI 48.5, 48.7). 27.8% of patients had at least 1 opioid prescription, with a median of 2 prescriptions (IQR 1, 4). In those patients receiving opioids, 186 (9.6%) patients had more than 10 prescriptions for opioids, with a max of 129. The most common prescriptions were hydrocodone (n=2579, 31.5%), oxycodone (n=1889, 23.1%), and tramadol (n=1139, 13.9%). In addition, prescriptions for methadone (n=101, 1.2%) and buprenorphine (n=40, 0.5%) were associated with IC diagnosis. Opioid prescriptions per month are shown in Figure 1, demonstrating a decline in opioid prescriptions per month for IC. However, the rate of narcotic prescriptions per IC diagnosis remained stable.

**CONCLUSIONS:** A significant number of patients with IC diagnosis are treated with opioids, with a percentage receiving a large number of opioid prescriptions. While the overall number of opioid prescriptions associated with IC appears to be declining, the prescription rate per IC diagnosis has not declined over the study years. As part of the national initiative to reduce narcotics use, our data suggest that IC treatment strategies should be examined.



**Source of Funding:** None

#### MP47-09 COMORBID CONDITIONS IN A NATIONWIDE, HETEROGENOUS POPULATION OF VETERANS WITH INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME

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**INTRODUCTION AND OBJECTIVES:** Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) has been associated with psychosocial factors and non-urolological associated somatic syndromes (NUAS) such as fibromyalgia, irritable bowel syndrome (IBS), and chronic fatigue. We examined the prevalence of comorbid conditions in a heterogeneous population of men and women with IC/BPS in a national dataset.

**METHODS:** Using the Veterans Affairs Informatics and Computing Infrastructure (VINCI), we identified a random sample of patients with an ICD-9 diagnosis of IC/BPS and patients without an ICD-9 diagnosis of IC/BPS or other pelvic pain conditions by querying all living veterans in the VINCI system. Presence of eleven comorbidities was determined using ICD-9 diagnosis codes: Alcohol Abuse, Back Pain, Chronic Fatigue, Diabetes, Fibromyalgia, Irritable Bowel Syndrome, Migraines, Post-Traumatic Stress Disorder (PTSD), Sexual Trauma, Smoking and History of Depression. Differences between groups were tested using multivariable logistic regression where needed to adjust for age.

**RESULTS:** Data from 2,056 subjects were included in this analysis with 1,211 IC/BPS patients (538 males, 44% and 673 females, 56%) and 845 non-IC/BPS patients (424 males, 50% and 421 females, 50%). IC/BPS patients were more likely to be female ( $p=0.01$ ) and were significantly older at the time of abstraction ( $p<0.0001$ ). After adjusting for the significant difference of age, the predicted prevalence of most comorbidities was higher in IC/BPS subjects (Table 1). For example, 41% of IC/BPS patients in our dataset were diagnosed with NUAS vs. 16% in non-IC/BPS patients. IC/BPS patients were nearly twice as likely to have a sexual trauma diagnosis (7% vs. 3%,  $p<.0001$ ) and 1.4 times more likely to have a PTSD diagnosis (40% vs. 30%,  $p<.0001$ ).

**CONCLUSIONS:** A significant percentage of IC/BPS patients were diagnosed with NUAS, which was consistent with the 47% found in a 2014 study by the MAPP Network (Krieger, et al.). Our PTSD findings in 40% of IC/BPS patients supports the findings of one of the few studies to examine the relationship between PTSD and IC/BPS, which reported 42% prevalence (McKernan, et al.). These data further elucidate the comorbidities associated with IC/BPS in male and female patients.