

**REVIEW OF THE 42nd ANNUAL SCIENTIFIC MEETING OF THE
INTERNATIONAL CONTINENCE SOCIETY (ICS)**

15-19 OCTOBER 2012, BEIJING, CHINA

**GREAT MEETING FOR CHRONIC PELVIC PAIN
AND PAINFUL BLADDER!**

Jane Meijlink

This was the first time that the ICS annual scientific meeting has been held in China and it was an amazing cultural and scientific experience at the Chinese National Convention Centre in Beijing. While Chinese doctors publish regularly in scientific journals, we don't usually have the chance to hear about their everyday clinical experience and this meeting presented the perfect opportunity. This year's meeting, chaired by Professor Limin Liao from Beijing and hosted jointly by the Chinese Urological Association, Chinese Continence Society and Chinese Medical Association, had much to offer in the field of chronic pelvic pain, IC/painful bladder and related topics: no fewer than two IC workshops, for the first time for years a dedicated scientific session with oral presentations on IC/painful bladder, associated disorders and IC-like symptoms in ketamine abuse, many posters on IC and related topics, a superb state-of-the-art lecture on Chronic Pelvic Pain and its Sexual Implications by Professor Kristene Whitmore from Philadelphia with an in-depth look at every aspect of chronic pelvic pain, and a fascinating lecture on Chinese acupuncture and how this ancient Chinese therapy has been adapted to meet the needs of the modern world by Chinese acupuncture expert Professor Ji-Sheng Han from Beijing. Furthermore, with its population of 1.3 billion, China potentially has a huge number of patients with IC and consequently is of great interest to the IC world.

WEBCASTS

All the state-of-the-art lectures and selected other sessions were videoed and will in due course be available on the ICS website: www.icsoffice.org.

RESEARCH IN ASIA

It was evident from the abstracts submitted that there is a great deal of research activity in Asia in the field of interstitial cystitis and the painful bladder, particularly in Taiwan, Japan, China and Korea. A number of studies looked at the efficacy of treatment with hyaluronic acid and botulinum toxin. There were also many presentations and posters on the often very severe IC-like bladder problems caused by street ketamine abuse and several studies compared this with IC. It was particularly interesting to hear about the bladder lesions caused by ketamine abuse. A review of the research presented – podium, poster and read as title abstracts - can be found at the end of this Beijing review.

TRADITIONAL CHINESE MEDICINE

It was very exciting to be in China, a country with a recorded tradition of medicine going back 4,000 years. We heard in Beijing about traditional Chinese medicine such as herbs and acupuncture and

how these ancient therapies have been adapted to modern times. Herbs can be especially effective for treating urinary incontinence and recurrent urinary tract infection. We learnt too that IC is also being treated in specialised hospitals in China with Traditional Chinese Medicine (TCM), including Chinese herbs and acupuncture, and sometimes with a combination of traditional and modern medicine. The acupuncture used today is often electroacupuncture, as was explained by Professor Ji-Sheng Han. It was interesting to learn that while acupuncture often used for pain control, it is also used in cases of drug addiction. He emphasized that further research is essential.

CHINESE BOOK ON DIAGNOSIS AND TREATMENT FOR URINARY INCONTINENCE



To mark the occasion, a Chinese book on Diagnosis and Treatment for Urinary Incontinence was published, including several international contributions, with a 2 chapter section on the painful bladder: Chapters 47 and 48 on Diagnosis and Treatment of Interstitial Cystitis/Bladder Pain Syndrome (Chapter 48 by Jane Meijlink in both Chinese and English). Publisher: People's Military Medical Press, 2012. ISBN: 978-7-5091-6139-5. This Chinese book will undoubtedly do much to raise awareness, including of IC.

PRESS INTEREST

ICS 2012 was exceptionally well attended by Chinese journalists and other media. The ICS Press Conference was packed with standing room only. This demonstrated that there is great interest in this field of health and will also help to disseminate information. China – like the rest of the world – has a large and growing elderly population and this means increased problems with incontinence.

LANGUAGE ISSUES

Language problems continue to present difficulties in communication with China, but many young health professionals and students are working hard on their English so as to be able to participate in international scientific exchange in the future and of course publish their research internationally.

WORKSHOPS

Two workshops in the field of IC/Painful bladder were held in Beijing.

WORKSHOP 36: PAIN, SEX AND THE BRAIN PAIN CONTROL IN INTERSTITIAL CYSTITIS/PAINFUL BLADDER SYNDROME

This workshop included Eastern and Western practical approaches to treat IC/BPS/PBS/CPBS with treatment options based on not only medical but also on self-help and complementary therapy, with the emphasis on an individualized and multidisciplinary approach. Speakers Ragi Doggweiler MD and Kristene Whitmore MD discussed effects of pain on sexuality including desire, arousal, orgasm, satisfaction and partner aspects and investigated the role of the central nervous system on bladder, bowel and muscle function including neuroplasticity.

This workshop was of particular interest because the speakers included two Asian doctors: Professor Yukio Homma from Tokyo and Professor Yang Yong from Beijing who explained Asian concepts and methods of diagnosis and treatment.

Chinese Approach

Professor Yang Yong from China explained how IC patients are diagnosed and treated in clinical practice in China. This is something we don't usually have the opportunity to hear about since many publications in English concern research rather than the realities of clinical practice. However, there have been many publications in Chinese, in the Chinese Journal of Urology.

Speaking about epidemiology, he noted that one of their big problems is the lack of a common epidemiological definition of PBS/IC, there is no consensus on the diagnosis of PBS/IC and there is no data based on the community population in China. Regarding treatment, there has been a lack of randomised controlled clinical trials. They are using sodium hyaluronate for intravesical treatment. Interstim neuromodulation is available, but has to be paid for by the patient as there is no reimbursement. This means that patients have to be selected with the greatest care as they have the very highest expectations of a therapy for which they have to pay so much! A number of patients were treated with total cystectomy with urinary diversion, none of whom had pain after surgery. The quality of life of these patients improved considerably, although some patients complained about the inconvenience of urinary diversion. Three patients had been treated with intestinal augmentation of the bladder. One patient is able to void although with difficulty and two are dependent on intermittent self-catheterisation. However, all three patients were without bladder pain after surgery.

On the topic of acupuncture for IC in China, he noted that they mainly stimulated two points: the Ci Liao Point and the San Yin Jiao Point. Electroacupuncture is commonly used, often in combination with Chinese herbs. A study was published in Chinese in 2011 on the effectiveness of electroacupuncture and Chinese herbs for IC patients. The problems with treating with acupuncture are that there has been no random controlled trial to confirm its efficacy and safety; the effectiveness could only be maintained during the treatment period; there is no consensus about parameters of electroacupuncture.

With regard to other treatment: pentosan polysulfate sodium is not available in China, nor is DMSO. While RTX is available, it has not been confirmed in any clinical trial. In recent years, some anaesthetics have started to be involved in pain management for IC patients.

Japanese Approach

Professor Yukio Homma from Tokyo, a leading authority in the field of IC, standardisation and taxonomy, spoke on the "Japanese approach: interstitial cystitis and its related symptom syndromes – 'pain' matters".

He discussed the Japanese approach to treatment, but also explained in detail the Japanese and East Asian concerns about terminology and definitions. He explained that taxonomy among interstitial cystitis (IC) and its related symptom syndromes, painful bladder syndrome (PBS), bladder pain syndrome (BPS), and overactive bladder syndrome (OAB) is in a state of confusion and that this confusion is divided into confusion between disease and symptoms and confusion between pain for researchers and pain for patients.

IC is a name of a disease. It presumes pathology in the urinary bladder, if any, and has been long used in medical and public societies. Unfortunately, however, we have no clear definition or no definite diagnostic criteria for IC. IC or IC-like patients are diverse in symptoms (with or without pain), cystoscopic findings (with or without ulcers/lesions) and histology (with or without inflammation). As such, when we encounter patients suggestive of IC, conservatively we are likely to call them by a symptom syndrome (PBS or BPS). A symptom syndrome is convenient for describing the complex of symptom(s) in a word. However, it should be remembered that PBS or BPS is a symptom-based diagnosis referring to symptoms only. A chimeric term connecting a disease name (IC) and a syndrome name, IC/PBS (IC/BPS) apparently indicates both the disease and the symptom complex. It

is inaccurate and unclear. The disease name and symptom syndrome names should be used with clear distinction made between them.

PBS and BPS contains the words 'painful' and 'pain', which leads to a misunderstanding that the patient must complain of pain. In reality a substantial proportion of patients do not. According to The International Association for the Study of Pain (IASP), pain is 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in such damage'. PBS is defined by ICS as 'suprapubic pain related to bladder filling, accompanied by other symptoms such as increased daytime and night-time frequency, in the absence of proven urinary infection or other obvious pathology'. The Society for Urodynamics and Female Urology (SUFU) defines PBS as an unpleasant sensation (pain, pressure, discomfort) perceived to be related to the urinary bladder, associated with lower urinary tract symptoms of more than six weeks duration, in the absence of infection or other identifiable cause. The Longman Dictionary of Contemporary English says 'pain is the feeling you have when part of your body hurts'. Thus, pain for researchers would be a kind of unpleasant sensation including discomfort and pressure, while it is not the case for patients. Pain is pain, and discomfort is discomfort, where patients are concerned; pain is not a kind of discomfort. This discrepancy can lead to exclusion of painless patients from the scope of PBS or BPS. A new symptom syndrome which encompasses pain in a broader sense but does not carry 'pain' in the term is needed.

To solve all this confusion, Homma and colleagues suggest:

- 1) defining IC as a disease,
- 2) coining a new symptom syndrome, hypersensitive bladder syndrome (HSB), and
- 3) using IC and HSB according to their definitions¹⁰.

The Japanese and other East Asians have defined IC as 'a disease of the urinary bladder diagnosed by three conditions:

- 1) lower urinary tract symptoms such as bladder hypersensitivity, urinary frequency, bladder discomfort and bladder pain,
- 2) bladder pathology such as Hunner's ulcer and mucosal bleeding after over-distension, and
- 3) exclusions of confusable diseases such as infection, malignancy and calculi of the urinary tract.

Bladder bleeding after overdistension is not highly sensitive or specific, although it is the sole abnormal endoscopic finding when Hunner's ulcer is absent.

HSB is defined as bladder hypersensitivity, usually associated with urinary frequency, with or without bladder pain. It would look like the definition of OAB (urinary urgency, usually associated with urinary frequency, with or without urgency incontinence). Hypersensitive bladder was once used as a term for idiopathic sensory urgency and 'early' IC, and implicated with overexpression of TRPV1 mRNA¹², responsiveness to intravesical resiniferatoxin or possible overlapping with OAB.

HSB and OAB are parts of a syndrome: 'frequency/urgency syndrome'. Urgency in this context means the strong urge to void or the pressing need to void (in a broader and more common sense). Urgency in OAB is characterized by sudden onset and/or fear of leakage, while urgency in HSB is of a persistent nature and associated with the fear of pain. OAB with leakage (OAB wet) is a typical OAB. PBS is a typical HSB. IC is a representative disease causative of HSB, most typically of PBS, but may be painless or indistinguishable from OAB in symptoms.

HSB can be used as a descriptive term for symptom complex, or as a diagnostic name for the condition that is suspected as IC, but has not fulfilled the requirements for IC diagnosis. HSB may occur with evidence for bladder pathology or without it; chronic pelvic pain or chronic pain disorders such as irritable bowel syndrome, chronic fatigue syndrome and fibromyalgia.

Frequency/urgency syndrome is characterized by frequency (frequent voiding) and urgency (strong desire to void). It is an inclusive term including overactive bladder (OAB) syndrome, hypersensitive bladder (HSB) syndrome, and other conditions that is associated with frequency and urgency. Urgency in OAB is characterized by sudden onset and/or fear of leakage, while urgency in HSB is of a persistent nature and is associated with the fear of pain. OAB wet is a subgroup meaning OAB with leakage. Likewise PBS (BPS) is a subgroup of HSB with pain. Interstitial cystitis (IC) is one of the diseases presenting frequency/urgency syndrome, predominantly overlapping HSB and PBS, and occasionally mimicking to OAB.

(Source of information: ICS handout for workshop 36 and ICS workshop presentations. For the latest developments in these concepts, please see the report of the findings of the international discussions organised in Rome 15-17 November 2012, to be published after the meeting on the ESSIC website)

Patient Perspective

This workshop was rounded off with a presentation by Jane Meijlink on the Patient Perspective, focusing on the psycho/social impact on the patient, particularly those who have spent many years trying to get a diagnosis for their symptoms, but been repeatedly “rejected” by health professionals.

WORKSHOP 14: PAINFUL BLADDER SYNDROME/INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME/HYPERSENSITIVE BLADDER SYNDROME – GLOBAL CONCEPTS AND HARMONIZATION

Speakers at this workshop were Jørgen Nordling MD (Denmark), Magnus Fall MD (Sweden), Tomohiro Ueda MD from Japan. Philip Hanno MD was unfortunately unable to attend the meeting in Beijing at the last minute but his slides were presented by Professor Nordling. Part of the programme was devoted to contrasting and comparing the different guidelines and seeing where the efforts of the last decade have been successful in harmonization and where the efforts seem to have failed and why they have failed. It did not promote any one guideline, but focused attention on the importance of harmonizing definitions, diagnosis, and management so as to improve clinical results into the future. A common language for nomenclature and definition, and a common basis for diagnosis will allow for better understanding, better outcomes and better cooperation internationally.

Professor Nordling looked at how historic development led to many misunderstandings about the disease, particularly use of the term ulcer which led many doctors to keep looking for ulcers. Even Guy Hunner’s contemporaries realised that these patients did not have true ulcers, but lesions. Nevertheless, the term persisted and possibly prevented many lesion patients from getting the right diagnosis and treatment. Glomerulations have been another misunderstanding and a lack of glomerulations on cystoscopy may also have excluded many patients from a diagnosis. What causes glomerulations and what they mean is still unknown. Professor Nordling emphasized that from 10% to 34% of patients with IC **do not** demonstrate glomerulations after hydrodistension. Glomerulations are frequently present in non-IC patients and not present in IC patients.

Magnus Fall MD from Sweden looked at histopathological features, including observations on mast cells which seem to be a puzzle to some people. He noted that there is an overexpression of mast cells in the classic Hunner disease+ deposition of epithelial mast cells may result from overexpression

of epithelial SCF and IL-6 mast cells can be activated by a variety of agents, leading to release of a number of distinct mediators, with or without degranulation.

He felt that there was a “fragility” in the bladder of these patients. He is also of the opinion that patients have been put in one basket for far too long and there may be several different groups within the non-Hunner group. He emphasized that this still remain to be proven.

It was also noted that evidence is accumulating of changes in the central nervous system and that IC/BPS is associated with multisystem disorders (such as IBS, fibromyalgia etc.)

It was underlined that the heterogeneity of IC/BPS and identification of phenotypes must be at the centre of attention.

Information was given by Tomohiro Ueda MD from Japan about the aims of the upcoming **3rd ICICJ** to be held jointly with the ESSIC annual meeting in Kyoto, 21/23 March 2013 (meeting website http://www.hainyo-net.org/study/icicj/index_e.html).

The aims of the **3rd ICICJ** are:

- To assess worldwide opinion on what IC is believed to be and how it is currently defined and diagnosed in different countries.
- To determine what studies are necessary worldwide to arrive at a consensus definition of IC that will have maximum clinical utility and serve as a guideline for international pharmaceutical regulatory agencies.
- To assess what information is currently available and what studies are needed to arrive at a unified diagnostic protocol for the practical physician to diagnose IC.

The slides of Philip Hanno MD were presented on his behalf by Professor Nordling and concerned harmonization of guidelines, definition and of course that hot potato: the name.

He explained as follows:

- **Bladder Pain Syndrome** is understood to identify the syndrome in the United States and Europe.
- **Interstitial Cystitis** remains a part of the American nomenclature for political and historical reasons (IC/BPS) and is synonymous with BPS.
- East Asian nomenclature **uses the terms interstitial cystitis, painful bladder syndrome and hypersensitive** bladder syndrome. According to Professor Hanno, use of the terms can lead to major discrepancies when comparing findings, depending upon exact definitions in individual publications.

SCIENTIFIC RESEARCH ABSTRACTS PRESENTED AT ICS

Note: Abstract numbers are included to facilitate abstract searches on the ICS website: www.icsoffice.org. Abstracts up to and including 282 can be found in full in *Neurourology & Urodynamics*, Volume 31, Issue 6, 2012. Abstracts presented here have been abbreviated.

Abstract 13.

TRPV1 AND TRPV4 ANTAGONISTS HAVE A SYNERGISTIC EFFECT DURING CYSTITIS.

Charrua A, Cruz C, Boudes M, De Ridder D, Cruz F

TRPV1 and TRPV4 are known to be expressed in the urinary bladder. TRPV1 is present both in the urothelium and in the urinary bladder nerve fibres. The purpose of this study was to examine the expression of TRPV1-TRPV4 in L6-S1 DRG population that projects to the urinary bladder, during cystitis, and to study inflamed urinary bladder reflex activity after co-application of TRPV1 and TRPV4 antagonists. Although there a drastic reduction on TRPV1 and TRPV4 co-expression on L6-S1 DRG during inflammation these receptors seem to have synergistic activity. This may be highly relevant for the therapy since it is expected to overcome potential side effects of each antagonist, such as TRPV1 antagonist induced-hyperthermia or TRPV4 antagonist-induced urinary retention/overflow incontinence.

Abstract 24

RELATIONSHIP BETWEEN PENILE / URETHRAL PAIN AND PATHOLOGICAL CHANGES OF THE PROSTATIC URETHRA IN PATIENTS WITH INTERSTITIAL CYSTITIS / PAINFUL BLADDER SYNDROME

Niimi A, Nomiya A, Nishimatsu H, Igawa Y, Homma Y

Niimi and colleagues from Tokyo note that the majority of IC/PBS patients are female and only 10% are male. IC/PBS often presents with lower urinary tract symptoms and bladder pain. In male IC/PBS patients, penile/urethral pain and discomfort are also their major symptoms. While hydrodistension and transurethral resection of Hunner's lesion are often applied in order to obtain symptomatic improvement for bladder pain, in male patients, penile/urethral pain and discomfort sometimes do not improve despite treatment. This study investigated whether inflammation spreads to the urethra as well as bladder mucosa in IC/PBS patients and examined the relationship between symptoms and histological findings of the urethra. The urethral mucosa of the IC/PBS patients showed characteristic histopathological features including denudation of epithelium, submucosal inflammation, and edema. The urethral mucosa of controls did not show those features in comparison with IC/PBS. Analysis of immunohistochemical staining also showed that staining intensity of NGF, VEGF and CXCR3 was increased in IC/PBS urethra compared to controls. The results of this study suggest that not only the bladder but also the urethra might be affected by inflammation. This may contribute to development of symptoms such as urethral/perineal pain and discomfort.

Abstract 25

AUGMENTATION ENTEROCYSTOPLASTY FOR END-STAGE BLADDER DISEASE DUE TO KETAMINE ABUSE

Chung S, Kuo H.

Chronic ketamine cystitis (KC) related end-stage bladder dysfunction (ESBD) is associated with severely bladder pain, urgency and frequency, and upper urinary tract deterioration which have a profound impact on quality of life (QoL). According to Chung and Kuo, traditional treatments for interstitial cystitis such as intravesical hyaluronic acid instillation or cystoscopic hydrodistention are usually ineffective for KC. This study in 10 patients with chronic KC aimed to evaluate the efficacy of augmentation enterocystoplasty (AE) in treating the bladder pain and improving bladder dysfunction in KC related ESBD. The results suggested that AE is effective for early pain relief and improvement of

objective bladder condition as well as the subjective PPBC in patients with KC-related bladder dysfunction. This study was a pilot study aimed to demonstrate efficacy for AE for KC-related ESD. Patients with KC are young and the ESD usually makes them unable to work normally. Early surgical intervention can improve clinical symptoms and prevent deterioration of the upper urinary tract in these patients.

Abstract 53

SENSORY NERVE RESPONSES TO ATP ARE REGULATED BY TRPV1 RECEPTORS.

Grundy L, Daly D, Mansfield K, Chess-Williams R, Grundy D

ATP is released from the urothelium during bladder filling and its action is an essential function of normal voiding behaviour, disruption of which leads to bladder hyporeflexia and disrupted micturition. The TRPV1 receptor, also present on primary afferent fibres, is consistently implicated in inflammation and pain and a more recent role in signalling during bladder filling has emerged. The aim of this study was to determine the nature of interactions between TRPV1 and P2X receptors in modulating afferent nerve activity. The resultant data indicate a significant interaction between P2X and TRPV1 receptors that may be important for pain sensation and micturition. Since the TRPV1 receptor regulated sensory nerve activity, it may provide a novel therapeutic target for the treatment of overactive bladder and interstitial cystitis.

Abstract 214

FAMILIALITY OF LOWER URINARY TRACT SYMPTOM DISORDERS IN WOMEN

Norton P, Allen-Brady K, Cannon-Albright L

Lower urinary tract symptom (LUTS) disorders including stress urinary incontinence (SUI), urge urinary incontinence (UUI), and interstitial cystitis (IC) are common. Twin and family studies suggest some prior evidence of heritability for LUTS disorders; however, most prior studies focus on family history of a disease within close relatives who often share an environment. Family history of a disease that includes both near and distant relatives is a strong predictor of an underlying genetic contribution to a disease. The objective of this study was to perform a familiarity analysis looking at near and distant relatives using statewide hospital inpatient discharge data that has been record linked to a state population-based genealogy database. Significant excess relatedness observed in both close and distant relatives for SUI and IC strongly supports genetic factors contributing to risk. Both genetic and environmental factors contribute to these LUTS disorders.

Abstract 217

THE PATIENTS WITH KETAMINE-INDUCED CYSTITIS (KIC) HAVE MORE SEVERE LOWER URINARY TRACT SYMPTOMS AND SMALLER BLADDER CAPACITY THAN PATIENTS WITH INTERSTITIAL CYSTITIS / BLADDER PAINFUL SYNDROME (IC/BPS)

Chen W C, Lee M H, Lee S P, Chen Y L, Wu H C, Lin H M, Liou W B

The symptoms of ketamine-induced cystitis (KIC) include a range of lower urinary tract symptoms (LUTS) mainly irritative in nature and the patients will complain of intense urgency, extreme frequency and intractable dysuria. Other studies suggested that cystoscopy showed ketamine-induced cystitis with ulcerative bladder mucosa and was similar to cystoscopic findings in patients with IC/BPS. The aim of this study is to investigate urodynamic examination parameters and the findings of cystoscopic hydrodistension compared with IC/BPS patients and the association between voiding symptoms and objective findings. From 2007 to 2010, 23 patients who were admitted due to LUTS with recreational ketamine abuse history. Fifty IC/PBS patients were included as control group. This study indicated that the patients with KIC have worse symptom scores, poor quality of life and significant decrease of urodynamic parameters and cystoscopic compare to those with IC/BPS. Moreover, the KIC patients were younger than IC/BPS patients. Subjective symptom scores and urodynamic parameters in patients with KIC seem more severe compare to those with IC/BPS. A

higher PUF score was associated with a decrease in maximum bladder capacity. The investigators felt that maximum bladder capacity may play an important role in not only irritative symptoms but also pain perception.

Abstract 223

PRESENCE OF SV2 AND SNAP-25 EXPRESSIONS IN BLADDER UROTHELIUM IN PATIENTS WITH OVERACTIVE BLADDER AND INTERSTITIAL CYSTITIS INDICATES THE POSSIBLE EFFECTIVE TREATMENT BY INTRAVESICAL INSTILLATION OF BOTULINUM TOXIN A

Jiang Y, Liu H, Shie J, Kuo H

This small study from Taiwan investigated treatment with botulinum toxin type A (BoNT-A) in patients with overactive bladder (OAB) and interstitial cystitis/ painful bladder syndrome (IC/PBS). Bladder tissues from 2 patients with OAB, 3 patients with IC/PBS, and 1 control were analyzed in this study. The authors believe that the present results show for the first time the presence of SV2 and SNAP-25 in the human urothelium. The presence of SV2 and SNAP-25 expressions in the urothelium and suburothelium of human bladder indicated the possibility of the application of BoNT-A to the bladder pathologies, for example, intravesical instillation through an appropriate vehicle such as liposome. In addition, the diverse presence of SV2 and SNAP-25 expressions in the bladder urothelium and suburothelium of patients of OAB and IC/PBS was a probable indicator of efficacy of BoNT-A treatment in the future.

Abstract 225

TRPV4 IS INVOLVED IN CELL JUNCTION FORMATION IN THE UROGENITAL TRACT EPITHELIA. AN ULTRASTRUCTURAL STUDY

Janssen D A W, Hoenderop J, Heesakkers J, Schalken J A

The aim of this Dutch study was to investigate cell junction formation in the urogenital tract of humans and in TRPV4 knockout mice. Results from their qPCR and immunofluorescence experiments demonstrate that TRPV4 channels are located in the urothelium of the bladder, ureter and the epithelial cells of the distal collecting ducts of the kidney. TRPV4 co localizes with adherence junctions throughout the urogenital tract. Immunofluorescence assays demonstrated a qualitative and quantitative reduction of cell junction formation (predominantly AJ's) in TRPV4 -/- kidney and bladder epithelium. TEM evaluation confirmed this and showed a remarkable increase in intercellular space between adjacent urothelial cells in bladders from TRPV4 -/- mouse. TRPV4 channels are connected to epithelial adherence junctions throughout the urogenital tract and play a role in cell junction formation. An absence of TRPV4 channels causes reduced urothelial cell adhesion and most likely leads to a leaky urothelium. These results suggest that TRPV4 channels, besides being important for sensory functions, are also involved in epithelial barrier formation.

Abstract 228

PRIMARY MOUSE UROTHELIAL CELL RESPONSE TO ATP IS MEDIATED BY P2X BUT NOT TRPV1 RECEPTORS

Grundy L, Chess-Williams R, Grundy D

The urothelium is considered an important component in bladder function and it is capable of releasing and responding to various neurotransmitters, neuromodulators and peptides. ATP is released from the urothelium upon stretch during bladder filling and it activates afferent nerves and initiates the micturition reflex. Urothelial cells are also capable of responding to ATP, but the receptors to which ATP binds and the responses it causes, have not been characterised. The aim of this study from Sheffield, UK, was to characterise mouse urothelial cell responses to ATP and to determine if the TRPV1 receptor is important in modulating these responses. Their results show that there is a lack of a functional TRPV1 receptor in mouse urothelial cells and knockout of this receptor has no influence on their ability to respond to ATP. These results also indicate a significant role of the

membrane bound P2X and P2Y receptors in mediating urothelial responses to ATP. The authors concluded that urothelial cells release ATP when stretched, but these data show that these cells also possess receptors for ATP and the cells respond to ATP with an increase in intracellular calcium, indicating an autocrine effect. Unlike sensory nerves, the urothelial cell responses to ATP are not regulated by TRPV1 receptors and the cells do not possess functional TRPV1 receptors.

Abstract 235

DOWN REGULATION OF APOPTOTIC AND INFLAMMATORY PROTEINS ARE ASSOCIATED WITH IMPROVED CLINICAL CHARACTERISTICS OF PATIENTS WITH INTERSTITIAL CYSTITIS AFTER REPEATED INTRAVESICAL BOTULINUM TOXIN A INJECTIONS

Kuo Y, Shie J, Kuo H

In this study from Taiwan, the authors note that interstitial cystitis/ bladder pain syndrome (IC/BPS) is a debilitating, chronic disease involving apoptosis and chronic inflammation of bladder tissue. Previous studies have proved the efficacy of intravesical botulinum toxin type A (BoNT-A) injection on the treatment of IC/PBS. In this study, Kuo et al investigated the changes of apoptotic activities and inflammatory proteins after repeated BoNT-A injections and their association with the clinical parameters. A total of 23 women with IC/BPS who received single intravesical BoNT-A injection were enrolled. Of these, 11 received three repeated injections every 6 months to improve their symptoms. The results of this study demonstrated that the apoptotic signalling proteins Bax and p-p38, and mast cell activity tryptase expressions could be suppressed by repeated BoNT-A injections, suggesting that BoNT-A injection could have an anti-inflammatory effect on IC/BPS bladders and improved the clinical symptoms such as pain and frequency urgency. However, a single BoNT-A injection could not relieve the symptoms and reverse the increased inflammation and apoptosis in part of the IC/BPS patients. Repeated injections are necessary to achieve complete immunohistochemistry resolution. They concluded that clinical symptom improvement in association with down regulation of apoptosis and inflammatory proteins could be achieved by repeated intravesical BoNT-A injection in IC/PBS patients.

Abstract 236

IMPROVEMENT BY EVIPROSTAT TREATMENT OF BLADDER DYSFUNCTION AND ALTERED LEVELS OF PHARMACOLOGICAL RECEPTORS AND URINARY CYTOKINES IN RATS WITH CYCLOPHOSPHAMIDE-INDUCED CYSTITIS

Nasrin S, Ito Y, Kugaya H, Yamada S.

Interstitial cystitis (IC) is a chronic, abacterial inflammatory disease of the bladder characterized by urinary frequency, urgency and suprapubic pain associated with bladder filling and relieved by voiding, but its exact etiology and pathogenesis remain unclear and effective treatment is not established. Currently, there are increasing evidences to suggest the idea that the abnormality of bladder receptors and urinary cytokines may implicate in the development of cystitis in rats [1,2]. The present study aimed to characterize the pharmacological effects of a phytotherapeutic agent, Eviprostat (EVI), by measuring urodynamic parameters, bladder muscarinic and purinergic receptors and urinary cytokines (interleukin-IL-6, IL-1 β and IL-17) in rats with cystitis induced by cyclophosphamide (CYP). The results from this study revealed down-regulation of muscarinic and purinergic receptors in the bladder and elevation of cytokines in urine of rats with chemically induced cystitis, suggesting significant involvement of bladder receptors and urinary cytokines in the pathophysiology of cystitis. Moreover, the alteration of urodynamic parameters, pharmacologically relevant receptors and urinary cytokines in CYP-treated rats was attenuated by the repeated treatment with EVI at pharmacological doses. It was concluded that alteration of bladder muscarinic and purinergic receptors and urinary cytokines in CYP-treated rats may be implicated in the pathophysiology of cystitis. EVI may be useful in the pharmacological therapy of cystitis.

Abstract 238

EFFECTS OF SENSORY NEURON-SPECIFIC RECEPTOR AGONIST ON VOIDING FUNCTION IN A RAT MODEL OF CYSTITIS INDUCED BY CYCLOPHOSPHAMIDE

Honda M, Inoue S, Hinata N, Takenaka A, Chancellor M, Yoshimura N

A novel family of G-protein-coupled receptors has been recently identified in rat dorsal root ganglia and named as sensory neuron-specific receptors (SNSRs). These receptors are expressed exclusively in a subset of small-diameter primary afferent neurons involved in transmission of nociceptive information. However, it is unknown whether SNSRs have a role in various pathological conditions in the lower urinary tract, such as interstitial cystitis, bladder outlet obstruction, spinal cord injury. The aim of this study was to elucidate the urodynamic effects of activation of SNSRs on cyclophosphamide (CYP)-induced overactive bladder in rats. The results in this study indicated that activation of SNSRs can ameliorate CYP-induced overactive bladder via suppression of capsaicin sensitive C-fiber afferent pathways in rats. Thus, SNSRs could be an effective target for the treatment of bladder dysfunctions such as overactive bladder and interstitial cystitis/bladder pain syndrome, for which C-fiber afferent hyperexcitability has been proposed to be an important pathophysiological basis.

Abstract 271

LONG-TERM KETAMINE ABUSE INDUCES INTERSTITIAL CYSTITIS IN RAT BY IMPAIRING BLADDER EPITHELIUM BARRIER

Gu D, Wong M, Wu P, Zheng S

Ketamine has increasingly been abused as a recreational drug. Long-term ketamine abuse can affect urinary system, causing lower urinary tract syndrome, such as frequency, urgency, suprapubic discomfort and times hematuria. However, the pathophysiology and causative mechanism of this ketamine associated cystitis is not clear. Since the clinical and laboratory features as well as the cystoscopy and biopsy findings of ketamine abusers are all similar to those with interstitial cystitis (IC) in the clinic, Gu and colleagues from China hypothesized that ketamine and its metabolites in the urine might cause a direct toxic effect on the bladder epithelial barrier, gradually generating IC-like symptoms. In this study, they substantiated and monitored the process as to how ketamine abuse damaged the bladder epithelium and induced cystitis in the rat. Ketamine and its metabolites in urine had a direct toxic effect on the bladder epithelium cells, generating defending nitric oxide and antiproliferative factor. The accumulative toxicity and sustained release of APF inhibited the proliferation and self-healing of bladder epithelial cells. Thus, the integrity of the bladder epithelium barrier was impaired, presenting as the decrease expression of glycoprotein GP-51 and ZO-1 on the bladder epithelium layer. Then, the permeability of the barrier was increased. Urine constituents, such as urea, potassium, can therefore penetrate into the bladder interstitium and muscle layer, leading to mononuclear inflammation cell infiltration, fibrosis, angiogenesis and hypervascularity. The diffusion of potassium, in particular, depolarized nerves and muscles, and consequently provoked IC-like symptoms such as frequency, haematuria and pain. The authors therefore named this IC-like syndrome ketamine associated interstitial cystitis. Furthermore, they note that researchers still lack an easily available interstitial cystitis animal model to study isolated symptoms of IC. Due to the similar clinical and histological features with IC patients and feline interstitial cystitis cats, the authors suggest that their animal model of ketamine treated rat may be a good IC animal model to study, helping to uncover the etiology and evaluate new methods in the treatment of IC.

Abstract 272

INCREASED APOPTOSIS AND SUBUROTHELIAL INFLAMMATION IN PATIENTS WITH KETAMINE RELATED CYSTITIS – COMPARISON WITH INTERSTITIAL CYSTITIS AND CONTROLS

Jiang Y, Shie J, Chen J, Kuo H

Altered urothelial homeostasis and activation of mast cells have been found to be the possible causes of interstitial cystitis/painful bladder syndrome (IC/PBS). Ketamine is an emerging drug abused by Asian youths for recreation. The symptoms of ketamine-related cystitis (KC) include dysuria, urinary frequency, urgency, hematuria, and severe bladder pain with investigations commonly revealing epithelial inflammation, neovascularization, and petechial hemorrhage of the bladder. This study from Taiwan investigated the suburothelial inflammation and urothelial dysfunction in KC and IC/PBS and tried to explore the underlying pathophysiology of KC. Defective junction protein of urothelium with urothelial dysfunction, activation of mast cells with suburothelial inflammation, and the increase of apoptosis in the bladder mucosa have been observed and thought to be the possible causes of IC/PBS. KC has the similar histological findings of IC/PBS qualitatively but with more severe urothelial dysfunction and increased apoptosis, which correlated with more severe clinical symptoms. KC was thought to be a more severe form of cystitis, and some progressed into the end-stage bladder manifested with contracted bladder and bilateral obstructive uropathy which were rarely observed in IC/PBS. The pathophysiology of KC and IC/PBS seemed to be different, although they shared the similar qualitative findings in histological and immunofluorescent analysis. In this study, KC and IC/PBS shared the similar findings of defective junctional protein, increased suburothelial inflammation, and increased urothelial cell apoptosis. Decreased expression of E-cadherin and increase of apoptosis were more severe in KC bladders than IC/PBS. These findings correlated with clinical symptoms between KC and IC/PBS, and the pathophysiology of KC and IC/PBS seemed to be different.

Abstract 273

THE PREVALENCE OF NON-BLADDER RELATED CONDITIONS IN PATIENTS WITH INTERSTITIAL CYSTITIS/PAINFUL BLADDER SYNDROME: THE IMPACT OF GENDER AND AGE

Cheng W, Fan Y, Lin A T L, Chen K

Growing evidence suggests that a variety of non-bladder specific illnesses frequently coexist with interstitial cystitis/painful bladder syndrome (IC/PBS). Such co-morbid conditions may complicate the clinical presentation and the treatment of IC/PBS. In a previous study, Cheng and colleagues from Taipei found that these co-morbid conditions correlate with the severity of IC/PBS symptoms. The aim of this study with 111 patients with IC/PBS was to further investigate the influences of age and gender on the prevalence of non-bladder related conditions in patients with IC/PBS. A total of 111 patients with IC/PBS, all of whom met NIDDK criteria, completed the screening questionnaires for chronic fatigue syndrome (CFS), irritable bowel syndrome (IBS), fibromyalgia (FM), temporomandibular disorders (TMD), multiple chemical sensitivities (MCS), headache, and localized myofascial pain disorder (LMP). It was found that female patients with IC/PBS are more likely to have non-bladder related conditions, especially headache and LMP. Younger IC/PBS patients were more prone to have IBS. Further investigation into the rationale on the gender and age differences of non-bladder conditions in IC/PBS patients is warranted, according to the authors.

Abstract 274

DIFFERENT EXPRESSIONS OF THE BLADDER INFLAMMATION, APOPTOSIS AND BARRIER PROTEINS IN PATIENTS WITH BLADDER OUTLET OBSTRUCTION, INTERSTITIAL CYSTITIS, SPINAL CORD INJURY, RECURRENT URINARY TRACT INFECTION AND KETAMINE CYSTITIS SUGGEST A SIMILAR PATHOPHYSIOLOGY IS INVOLVED IN DIFFERENT BLADDER CONDITIONS

Chen W C, Shie J, Kuo H

Lower urinary tract symptoms (LUTS) comprise storage, voiding and post-micturition symptoms affecting the lower urinary tract and may be associated with chronic inflammation. There are many lower urinary tract dysfunctions (LUTD), such as bladder outlet obstruction (BOO), interstitial cystitis (IC), spinal cord injury (SCI), and recurrent urinary tract infection (UTI), may similar LUTS. Previous studies have suggested that the molecule mechanism of interstitial cystitis (IC) involved urothelial dysfunction, activation of mast cell, and chronic inflammation. Recent studies also demonstrated that higher apoptotic cell numbers and lower E-cadherin expression in IC patients were associated with chronic inflammation of bladder wall. Chen et al from Taiwan hypothesized that the inflammatory reaction, apoptosis, and urothelial junctional dysfunction might also exist in the other LUTDs. The aim of this study was to measure the infiltration of mast cell, apoptosis cell numbers and E-cadherin expression in patients with BOO, IC, SCI, recurrent UTI, and ketamine cystitis (KC). They concluded that lower urinary tract dysfunction (LUTD) may be associated with chronic inflammation and abnormal urothelial dysfunction. High apoptotic cell number and low expression of E-cadherin were observed in KC and IC. KC bladders had the most severe urothelial dysfunction, urothelial apoptosis and inflammation. The inflammation and increased urothelial apoptosis might be the common pathophysiology of various LUTD that caused different lower urinary tract symptoms.

Abstract 275

INTERSTITIAL CYSTITIS ASSOCIATED WITH SJÖGREN'S SYNDROME

Nomiya A, Niimi A, Nishimatsu H, Matsuzawa Y, Suzuki M, Fujimura T, Fukuhara H, Enomoto Y, Kume H, Igawa Y, Homma Y.

While the pathogenesis of Interstitial Cystitis (IC) is unknown, autoimmunity is thought to be one of the possible pathogenesis. Sjögren's syndrome (SS) is an autoimmune diseases known to have strong association with IC. Nomiya and colleagues from Tokyo evaluated clinical and pathological features of IC associated with SS. Seven female IC patients with SS were evaluated. The authors found that IC with SS patients had similar clinical features to those without SS, however, the severity of the SS did not correlated with the severity of the IC. However, IC with SS showed diffuse mucosal change, while IC without SS showed partial change. They suggest that the increased number of CD4 positive T cells in IC with SS bladder mucosa suggests that CD4 positive T cells may play a significant role in the pathogenesis of IC with SS, as well as SS itself.

Abstract 276 531

DOWN REGULATION OF VASCULAR ENDOTHELIAL GROWTH FACTOR AFTER REPEATED INTRAVESICAL BOTULINUM TOXIN A INJECTIONS IS ASSOCIATED WITH IMPROVEMENTS OF CLINICAL SYMPTOMS AND BLADDER CAPACITY IN PATIENTS WITH INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME

Chen W C, Shie J, Kuo H

Chen and colleagues from Taiwan note that IC/BPS is a chronic disease of uncertain etiology that is an unpleasant sensation perceived to be related to the urinary bladder with no reliable biological marker or effective therapy. Recent evidence supports a role for vascular endothelial growth factor (VEGF) signalling in bladder inflammation and is closely associated with the vascular alterations observed in patients with IC/BPS. Other studies suggested that repeated intravesical botulinum toxin A (BoNT-A) injections in patients with IC/BPS have symptomatic improvement and may involve in anti-inflammatory response. The aim of this study was to measure the expression of VEGF in bladder

tissue and improvement of clinical symptoms after repeated intravesical BoNT-A injections in patients with IC/BPS. The results of this study revealed that repeated BoNT-A injection provided both improvement of clinical symptoms including O'Leary-Sant score, VAS, and functional capacity and decreasing chronic bladder inflammation such as expression of VEGF and decreased apoptosis of urothelial cells in IC/BPS. A higher VEGF expression was associated with severe clinical symptoms and bladder inflammation. Although the correlation between the expression of VEGF and the severity of glomerulations was not significant, the trend that after repeated BoNT-A injection the functional bladder capacity could be increased due to improved bladder inflammation in IC/BPS patients was likely. It was concluded that the increased VEGF expression in IC/BPS can be decreased after repeated BoNT-A injections. Repeated intravesical BoNT-A injections in IC/BPS patients provided improvement of clinical symptoms with increased functional bladder capacity.

NON DISCUSSION POSTERS

Abstract 316 534

EXPRESSION OF URINARY NERVE GROWTH FACTOR IN DIFFERENT LOWER URINARY TRACT CONDITIONS

Yoon H, Park Y Y, Shim B S, Chung W S, Lee D H

Lower urinary tract symptoms (LUTS) are the key symptoms of overactive bladder (OAB). However, these symptoms are also seen in acute cystitis or other urinary tract infections or urinary tract pathologic conditions. Nerve growth factor (NGF) is known to exist in intravesical urothelium and suburothelium. And it is known that related to detrusor overactivity, bladder sensation, detrusor contraction and other lower urinary tract function. Therefore, Yoon and colleagues aimed to investigate the urinary NGF levels in both OAB and cystitis condition and the significance of its role as a marker for a certain disease. They concluded that their study suggests that storage symptoms of LUTS closely related to bladder sensation may have correlation with increased urinary NGF. And urinary NGF expression decreases with anticholinergic medications resulting in clinically showing symptomatic improvement.

Abstract 365

NON-BLADDER COMORBID CONDITIONS IN FEMALE PATIENTS WITH IDIOPATHIC OVERACTIVE BLADDER

Chang T, Fan Y, Lin A T L, Chen K.

Growing evidences indicate that interstitial cystitis/bladder pain syndrome (IC/PBS) is closely associated with several non-bladder conditions, including irritable bowel syndrome (IBS), fibromyalgia (FM), chronic fatigue syndrome (CFS), headache and temporomandibular disorder (TMD). Overactive bladder (OAB) is another common clinical problem presenting with quite similar bladder storage symptoms as IC/PBS. However, whether non-bladder comorbid conditions are also associated with OAB is still unknown. This paper from Taiwan investigated the correlation between OAB and non-bladder comorbid conditions in female patients with idiopathic OAB. Chang and colleagues collected 47 consecutive female patients with idiopathic OAB visiting their outpatient clinic. All patients had urinary frequency (more than 8 voidings per day) and urgency, with or without urgency incontinence. All patients did not have urinary tract infection, pain relating to bladder distension, stress urinary incontinence (SUI) or neurological disorder. All study participants completed the screening questionnaires for CFS, FM, IBS, TMD, multiple chemical sensitivities (MCS), headache and localized myofascial pain disorder (LMP). The severity of OAB was assessed with Overactive Bladder Symptom Score (OABSS). There was no significant difference in the prevalence of non-bladder conditions between female patients with idiopathic OAB and SUI except for LMP. In OAB patients, the presence of CFS and FM was positively correlated with symptoms severity of OAB. OAB patients with more non-bladder conditions tended to have more severe OAB symptoms. The authors

concluded that female patients with idiopathic OAB are likely to have multiple non-bladder conditions. Prevalence of LMP was particularly striking high in the OAB patients. The presence of CFS, FM, and multiple non-bladder conditions associated with a higher severity of OAB symptoms.

Abstract 480

INCREASED PRO-INFLAMMATORY CYTOKINE AND CHEMOKINE EXPRESSIONS IN SERUM OF PATIENTS WITH INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME

Liu H, Kuo H

Interstitial cystitis/bladder pain syndrome (IC/BPS) is a syndrome of chronic bladder and pelvic pain with symptoms of urgency and frequency. The etiology and pathogenesis are still unclear. Several possible pathophysiologic mechanisms including epithelial dysfunction, mast cell activation, autoimmune, neurogenic and chronic inflammation have been proposed. In a recent study, Liu and Kuo reported an elevation of serum C-reactive protein (CRP) in patients IC/BPS. The results imply that chronic inflammation is present in the urinary bladder of IC/BPS patients. This study measured the pro-inflammatory cytokines (IL-1 β , IL-6, TNF- α) and chemokine (IL-8) expressions in serum of patients with IC/BPS, which may elucidate the association between these inflammatory mediators and clinical characteristics of IC/BPS. The authors note that increased pro-inflammatory cytokines (IL-1 β , IL-6, TNF- α) and chemokine (IL-8) expressions in serum of IC/BPS patients implies not only mast cell activation, but also that some other inflammatory mediators may play important roles in the pathogenesis of IC/BPS. They conclude that their previous report and these results suggest that IC/BPS is a chronic inflammation disease

Abstract 514

THE USE OF HYALURONIC ACID (HA) BLADDER INSTILLATION PLUS HYDRODISTENSION IMPROVE SUBJECTIVE SYMPTOMS BUT NOT URODYNAMIC PARAMETERS IN PATIENTS WITH INTERSTITIAL CYSTITIS / BLADDER PAIN SYNDROME (IC/BPS) - PROSPECTIVE CASE CONTROL STUDY

Chen W C, Lee M H, Wu H C, Lee S P, Liu W B, Lin H M, Chen Y L.

Bladder epithelium is not only defence to infections but also a tissue with afferent and efferent function as release of mediator and playing an important role in the pathogenesis of lower urinary tract dysfunction (LUTD). IC/BPS is one LUTD that can be pathophysiologically linked to defects in the glycosaminoglycan (GAG) mucosal layer. Recent studies supported that 65% of positive response rate after bladder instillation of HA was noted in IC/BPS patients but lack of control group and outcome parameters only subjective symptoms were included. The aim of this prospective case control study from Taiwan was to compare efficacy with HA bladder instillation plus hydrodistension and only hydrodistension by using subjective symptom scores and urodynamic parameters. The use of hydrodistension plus HA instillation was effective in reducing subjective symptoms, but not objective urodynamic parameters in IC/BPS patients compared to hydrodistension only. The effect lasted for 6 months. However, bladder pain syndrome was relapse first in our follow-up at 6th month. The improvement in pain was difficult to achieve using HA instillation plus hydrodistension due to the multi-pathogenesis of IC/BPS.

Abstract 515

MCP-1 INDUCED HISTAMINE RELEASE FROM MAST CELLS IS ASSOCIATED WITH THE FORMATION OF INTERSTITIAL CYSTITIS IN RATS

Jianwei L, Jing L, Ganggang Y, Yujian Z, Juanjie B, Dongming L, Yiran H.

The purpose of this Chinese study from Shanghai was to observe the monocyte chemoattractant protein-1 (MCP-1) and histamine (HA) expression levels in IC rat bladder tissue and urine induced by intravesical instillation of protamine sulfate (PS) and lipopolysaccharide (LPS), and the mechanism of MCP-1 in the IC and vitro experiment. The authors report that the mechanism of MCP-1 in the IC

process may be that some toxic substances in the urine (such as: LPS) stimulate the bladder epithelial cells to produce more MCP-1. MCP-1 could combined with the MC surface through the CCR2 receptor, induced activation of MC, which could release much HA and other inflammatory factors, thereby aggravating the pathological process of inflammatory and fibrosis in IC. They concluded that the up-regulation of MCP-1 in IC is a causative factor for induction of histamine release from mast cells through CCR2 in bladder tissue, aggravating the pathological process of inflammation and fibrosis.

Abstract 516

FIRST CLINICAL EXPERIENCE OF INTRAVESICAL ELECTROMOTIVE BOTULINUM TOXIN ADMINISTRATION FOR PAINFUL BLADDER SYNDROME TREATMENT.

Mirkin Y, Bedretdinova D, Eizenakh I, Smirnov G, Romikh V, Malinina O.

Some trials have shown efficacy of injections of botulinum toxin A into the bladder wall (submucosally) for the treatment of Painful Bladder Syndrome. However, disadvantages of this method include invasiveness, general anaesthesia, fear of patients. For this reason, Mirkin and colleagues from Russia decided to evaluate the possibility of intravesical electromotive incobotulinumtoxinA (Xeomin, Merz) administration. Electromotive drug administration (EMDA) is a widely used method of local drug administration. The molecule of botulinum toxin A (BOTOX) is too heavy (900 kDa) but incobotulinumtoxinA (Xeomin) molecular weight is only 150 kDa. The aim of this study was to evaluate the clinical efficiency of electromotive Xeomin administration in 23 women suffering from Painful Bladder Syndrome. They found it to be a promising method, but an RCT with a good design is now needed. Potential indications include painful bladder syndrome, overactive bladder, sensory bladder and possibly perineal pain.

Abstract 517

THE EFFECT OF A SHORT COURSE OF ORAL PREDNISOLONE THERAPY IN PATIENTS WITH BLADDER PAIN SYNDROME WHO SHOWED TRANSIENT FLUCTUATING WORSENING PAIN AS FLARE SYMPTOMS ALTHOUGH HAVING LOW DOSE TRIPLE THERAPY

Jeong H J, Han D Y, Rho J H

The effect of triple therapy with gabapentin, amitriptyline and NSAIDs (non-steroidal anti-inflammatory drugs) is efficacious for chronic bladder pain syndrome/interstitial cystitis (BPS/IC). In this study from Korea, the authors assessed the validity of their observational experience that a short course of oral prednisolone therapy might be of value in the management of flare symptoms of BPS/IC. Between May 2007 and May 2012, 7 women with BPS/IC, who showed transient fluctuating worsening pain as flare symptoms despite having low dose triple therapy, received a 1 to 3 month course of oral prednisolone 10 mg. A short course of oral prednisolone therapy proved to be sufficiently effective. Low dose triple therapy with prednisolone caused no significant adverse effects. However, large-scale studies should be performed to verify these findings.

Abstract 518

EFFICACY AND SAFETY OF SUPRATRIGONAL CYSTECTOMY WITH ILEOCYSTOPLASTY FOR THE TREATMENT OF BLADDER PAIN SYNDROME/INTERSTITIAL CYSTITIS.

Lee K, Lee S Y, Lee H N, Lee Y, Cho W J, Lee H S, Chung J W, Chung J Y

Although a number of nonsurgical treatment modalities or conservative surgical treatment for BPS/IC such as transurethral resection or fulguration of the lesions have been reported to result in good, initial failure or patients with diminishing efficacy after an initial response are also common. Supratrigonal cystectomy with ileocystoplasty is one of surgical options for BPS/IC. In this retrospective study from Korea, Lee and colleagues evaluated the long-term results of supratrigonal cystectomy with ileocystoplasty for BPS/IC in 26 patients (male: 1, female: 25) who had undergone

supratrigonal cystectomy with ileocystoplasty by same surgeon from July 2006 to February 2010. All patients had poor therapeutic response to conservative treatment including pharmacotherapies and/or hydrodistention. Their results showed supratrigonal cystectomy with ileocystoplasty has good outcomes, that pain and frequency decreased and bladder capacity increased significantly. In addition, patients' global responses revealed that they were satisfied with the treatment. There is no severe complication with surgery for short-term and long-term follow up. It was concluded that supratrigonal cystectomy with ileocystoplasty is a valuable therapeutic option for intractable bladder pain syndrome/interstitial cystitis. However, patients must be aware of the possibility of self-catheterization.

Abstract 519

INVOLVEMENTS OF CYCLOOXYGENASE-2 AND NITRIC OXIDE SYNTHASE IN KETAMINE-INDUCED CYSTITIS IN RATS

Juan Y, Chuang S, Jang M, Wu W, Huang C, Levin R M, Long C.

The major aims of this study in rats from Taiwan and the USA were to investigate urodynamic functions after acute and chronic ketamine treatments and to evaluate the expression and localization of cyclooxygenase-2 (COX-2) and different nitric oxide synthase (NOS) isoforms in the urinary bladder after ketamine treatment. Juan and colleagues found ketamine treatment stimulates macrophage infiltration, induces COX-2 expression and enhances iNOS activity, which could contribute to bladder damages and altered micturation reflex. On the contrary, up-regulated eNOS expressions after ketamine injection may have protective effects on regulating bladder microcirculation. Clinically, the elucidation of the changes in the level of NO and the utilization of NOS and/or COX inhibitor may have potential therapeutic value for ameliorating bladder dysfunction in ketamine abused population. They concluded that ketamine injection significantly increased micturation frequency and non-voiding contractions, while it decreased bladder capacity. Ketamine enhanced bladder interstitial fibrosis, decreased urothelium thickness, and accelerated macrophages infiltration. The expressions of COX-2, iNOS and eNOS in the urinary bladder were up-regulated in ketamine-induced cystitis with little changes in nNOS level.

Abstract 521

URINE MACROPHAGE MIGRATION INHIBITORY FACTOR (MIF) AS A DIAGNOSTIC MARKER IN INTERSTITIAL CYSTITIS

Lee K W, Kim H H, Lee D H, Kim J C

Macrophage migration inhibitory factor (MIF) is a mediator of the endocrine system and the immune system, it is known to act as a proinflammatory protein of many inflammatory reactions. The symptoms of interstitial cystitis is thought to be associated with chronic inflammation of the bladder due to multifactorial causes including infection and autoimmune. However it is unclear whether MIF may play a role in pathogenesis in chronic inflammation of the bladder like as interstitial cystitis (IC). In this study from Korea, Lee and colleagues evaluated the clinical usefulness of urine MIF test as a biomarker of IC. They concluded that MIF is a precursor of an inflammatory reaction and it acts by reacting with many inflammatory cytokines. The result of our study shows that MIF was highly expressed in urine of patients with IC. Our data suggest that the MIF may play a role in pathogenesis of IC, and urine MIF measurement could be a useful biomarker in diagnosis of IC.

Abstract 522

URODYNAMIC CHARACTERISTICS IN PATIENTS WITH KETAMINE ASSOCIATED CYSTITIS

Meng E, Wu S, Cha T, Sun G, Yu D, Chang S.

Ketamine abuse may cause variable lower urinary tract symptoms and severe cystitis. In this study from Taiwan, Meng and colleagues evaluated the relevance of urodynamic parameters according to

the dose and duration of ketamine use. The urodynamic study results were analysed retrospectively in 28 consecutive patients with ketamine associated cystitis between Jan 2009 and Feb 2012. All patients had been diagnosed based on the history and clinical features before urodynamic investigation. After urodynamic studies, cystoscopy was performed to confirm the diagnosis and measure the maximal bladder capacity under spinal or general anesthesia. It was concluded that urodynamic test results help diagnose ketamine associated cystitis, but may not be useful in determining the severity of disease. High-dose (> 5 gm/day) or long-duration (> 3 years) ketamine use can cause significant reduced anatomic bladder capacity. Maximum anaesthetic bladder capacity may be a useful parameter to evaluate the disease progression of ketamine associated cystitis.

Abstract 523

URINE AND TISSUE GLYCOSAMINOGLYCANS AS BIOMARKERS FOR PAINFUL BLADDER SYNDROME/INTERSTITIAL CYSTITIS – INSIGHT ON PATHOPHYSIOLOGY?

Lucon M, Martins J, Kobayashi E, Helena N, Hisano M, Srougi M, Bruschini H.

Abnormalities of the urothelial glycosaminoglycan (GAG) layer are thought to play a role in the etiology of painful bladder syndrome/interstitial cystitis (PBS/IC) (1). Attempts to correlate urine levels of GAG with PBS/IC have reached contradictory results. Lucon and colleagues from Brazil investigated GAG in urine and bladder tissue of PBS/IC patients in an attempt to understand their relationship. Urine was collected from 11 female patients with a clinical diagnosis of PBS/IC by bladder diary and a self-reported validated questionnaire, and cold-cup bladder biopsies were obtained before hydrodistension. Urine and bladder biopsies were also obtained from 11 female patients with pure SUI, as controls. Sulfated GAG (S-GAG) and hyaluronic acid (HA) were measured in the urine and tissue samples were used for proteoglycans, HA and extra-cellular matrix proteins immunostainings; and analyses of S-GAG levels and gene expression of HA synthases and hyaluronidase. The authors report that rather than possible biomarkers, analyses of GAG in patients with PBS/IC may be important in understanding the pathophysiology of the disease and the tissue changes occurring because of the dysfunctional urothelium. Since changes in HA synthases and hyaluronidase gene expression were consistent among PBS/IC patients, they could possibly be a marker of the disease. While PBS/IC pathophysiology is still not fully understood, the study of GAG behaviour and gene expression may help to improve that.

Abstract 525

THE CURATIVE EFFECT OF INTRAVESICAL IRRIGATION OF HYALURONIC ACID FOR TREATMENT OF NON-BACTERIAL CYSTITIS

Shi B, Zhang D, Meng H, Zhu Y, Feng X, Ma Z

Shi and colleagues from Shandong, China note that research shows that bladder mucous membrane's glycosaminoglycan (GAG) layer can protect the bladder wall from damaging of ion, microorganism, crystals and other toxic molecular. Based on this mechanism, protecting the bladder mucous membrane's barrier may become the main therapeutic method for bacterial cystitis. Hyaluronic acid (HA) is important composition of bladder glycosaminoglycan (GAG), therefore intravesical irrigation of hyaluronic acid can patch defective glycosaminoglycan layer (GAG) in bladder mucous membrane to relieve bladder irritation symptoms. In order to evaluate the efficacy and safety of intravesical irrigation of hyaluronic acid (brand name: Cystistat), from May 2009 to October 2011, the authors carried out a study involving intravesical irrigation of Cystistat in 16 cases of non-bacterial cystitis patients. All patients completed perfusion and follow-up. The authors found that their study confirmed that hyaluronic acid has a short-term curative effect, significantly relieving symptoms and improving quality of life in patients with non-bacterial cystitis.

Abstract 526

VALIDATION OF BRAZILIAN VERSION OF THE QUESTIONNAIRE "THE INTERSTITIAL CYSTITIS SYMPTOM INDEX AND PROBLEM INDEX"

Fernandes M, Lopes M H, D'Ancona C.

The diagnosis of interstitial cystitis (IC) is still a challenge due lack of universally accepted criteria. It can be based on cystoscopy, urodynamics, potassium sensitivity testing, biopsy, laboratory tests and questionnaires. But none is conclusive, and Fernandes and colleagues from Brazil believe that a symptom questionnaire to capture and record the presence of all (IC) symptoms is useful in helping to establish a more accurate diagnosis. Since the questionnaires are an important aid for the diagnosis of interstitial cystitis, and in turn are not available in Portuguese in Brazil, it is necessary to translate and validate questionnaires developed, tested and used in other countries, to obtain an accurate diagnosis and, consequently, appropriate treatment and better prognosis. The aim of this study was to validate the Brazilian version of the questionnaire "The Interstitial Cystitis Symptom Index and Problem Index". Despite the still small number of patients diagnosed with interstitial cystitis in Brazil, the test-retest reliability and discriminant validity of the instrument "The Interstitial Cystitis Symptom Index and Problem Index" was carried out satisfactorily. In future studies, the intention is to carry out further assessments of psychometric measures with larger number of patients.

Abstract 527

EFFECTS OF COMBINATION TREATMENT OF INTRAVESICAL RESINIFERATOXIN INSTILLATION AND HYDRODISTENTION PATIENTS WITH REFRACTORY PAINFUL BLADDER SYNDROME/INTERSTITIAL CYSTITIS: A PILOT STUDY

Kim J H, Kim J H, Ham B G, Park J Y, Jang H A, Choi H, Oh M M, Lee J G, Bae J H

Current medications used in the treatment of PBS/IC have shown limited efficacy. This prospective study from Korea investigated the efficacy of intravesical resiniferatoxin (RTX) in PBS/IC refractory to medical treatment. Patients with proven PBS/IC refractory to traditional medical treatment were enrolled. By randomized trial, a total of 18 consecutive patients were divided into two groups: treatment with hydrodistention and intravesical RTX (group 1) or treatment with hydrodistention only (group 2). Intravesical RTX instillation plus hydrodistention, compared with hydrodistention only, did not have a significant effect on the voiding symptoms or uroflowmetry of the patients but significantly improved scores on the pain scale. It was therefore concluded that intravesical RTX instillation plus hydrodistention was effective in relieving pain but was not effective in improving lower urinary tract symptoms. Further larger studies are need to clarify the efficacy of combination treatment of intravesical RTX instillation and hydrodistention.

Abstract 529

VOIDING DIARY CAN SERVE AS THE PRIMARY TOOL TO DIFFERENTIATE INTERSTITIAL CYSTITIS FROM IDIOPATHIC OVERACTIVE BLADDER

Kim S, Cho S Y, Jeong S J, Paick J, Kim S W

Interstitial cystitis (IC) and overactive bladder (OAB) have many similar and overlapping symptoms. Therefore it is difficult for clinicians to differentiate them from each other. The aim of this study from Seoul was to identify the characteristics of 3-day voiding diary in the patients with IC and with idiopathic OAB. A voiding diary is a useful and easily patient self-completed diagnostic tool applied for objectively reproducing patients' voiding symptoms. 3-day voiding diary seemed to be most commonly proposed in consideration of accuracy of voiding diary as well as the patients' burden of recording. Prospectively collected 3-day voiding diaries in 49 consecutive IC patients and 301 idiopathic OAB subjects at outpatient clinic between September 2005 and June 2010 were analyzed retrospectively. All patients had been diagnosed and grouped into either IC or idiopathic OAB based

on the International Continence Society classification. Kim and colleagues report that patients with IC void more frequently with shorter interval, with constantly smaller volume, and with narrower range of changing voided volume than with OAB. The nighttime voiding variables except for the range of voiding intervals for IC group were statistically different from those of the OAB group, demonstrating that the voiding mechanisms of two groups were different due to different pathophysiology. For both groups, the nighttime voided range, volume, and voiding intervals are larger compared to those observed during the day. As for the range of voiding interval of both groups, the nighttime is not significantly different comparing to the daytime. This is hypothetically explained by that the perceptively urgent and painful threshold increased for voiding sufficient to wake an individual up from sleep and the perceptive sensory to pain decreased in the nighttime during sleep. Urgent bladder pain in IC patients is increased exponentially relative to the increasing bladder volume, whereas urgency in OAB patients has a phasic pattern and is not exponentially related to increasing bladder volume. After tolerating the urgent moment, these OAB patients are able to continue to sleep until the bladder is fully distended so that they feel the normal desire to void and wake from their sleep. Finally, the significant voiding variables in 3-day voiding diary are the total nighttime frequency, maximal nighttime voided volume, and mean variance of daytime voiding intervals after calibrating all other variables. The authors conclude that their study involving voiding diary demonstrated that voiding characteristics for the IC and OAB patients were significantly different in the 3-day voiding diary, so that it might help for clinicians to differentiate diagnosing from both diseases with other diagnostic tools in outpatient-based clinical settings.

Abstract 530

INTRAVESICAL HYALURONIC ACID IN THE TREATMENT OF INTERSTITIAL CYSTITIS / PAINFUL BLADDER SYNDROME

Song M, Kim D J, Chun J, Han J Y, Chung J Y, Choo M.

Intravesical instillation of hyaluronic acid (HA) may lead to regeneration of the damaged glycosaminoglycan layer of the bladder in patients with interstitial cystitis/painful bladder syndrome (IC/PBS). The aim of this study from Korea was to assess the effect of bladder instillation of HA to treat refractory IC/PBS patients. A total of 29 patients with clinical symptom of IC/PBS who had poor response or unsatisfactory to previous treatment were prospectively enrolled. Patients who had pelvic pain score ≥ 2 on Pelvic Pain and Urgency /Frequency (PUF) questionnaire and ≥ 6 on O'Leary-Sant Index Score (ICS) were selected. All patients received cystoscopy as a baseline study and received intravesical instillations of 40mg HA diluted in 50ml saline once weekly for 4 weeks then thereafter monthly according to their symptoms. All patients were female and mean age was 58.2 ± 9.8 . They had been treated with medication, 12 patients among them received hydrodistension of the bladder, 3 patients, botulinum toxin injection to the bladder before HA instillation. Hunner's ulcers were found in 12 patients on cystoscopy. Sixteen patients (64.0%) showed improvement after 4 times HA instillation. Mean frequency, pain and symptoms evaluated by questionnaires in all patients improved. No side effect of intravesical HA was recorded. It was concluded that intravesical instillation of HA was effective for the patients with IC/PBS who had poor response to previous treatment, without side effects.

Abstract 532

INSTALLATION OF HYALURONAN VIA ELECTROMOTIVE DRUG ADMINISTRATION CAN IMPROVE THE EFFICACY OF THE TREATMENT IN PATIENTS WITH INTERSTITIAL CYSTITIS/PAINFUL BLADDER SYNDROME: A RANDOMIZED PROSPECTIVE STUDY

Gülpinar Ö, Haliloglu A H, Gökçe M I, Arikan N

In the treatment of bladder pain syndrome/interstitial cystitis (BPS/IC) intravesical hyaluronan application is an accepted treatment. In this randomized prospective study from Turkey, Gülpinar

and colleagues aimed to identify whether instilling the hyaluronan with EMDA can increase the tissue uptake and improve efficacy. The data of 31 patients who had been diagnosed with BPS/IC between 2004–2005 were examined. The patients were randomized to two groups, patients in group A received hyaluronan directly with a catheter and patients in group B received it with EMDA. The patients were followed for 24 months and two groups were compared at certain time intervals. There were 6 males and 25 females. The two groups were similar for baseline parameters and efficacy of treatment with EMDA was better at months 6 and 12. The difference between the two groups was not significant at month 1 and 24. Also treatment with EMDA, positive KCl test and pretreatment voiding frequency > 17 were found to be associated with higher response rates

Abstract 553

REPEATED INTRAVESICAL ONABOTULINUMTOXIN-A INJECTIONS ARE EFFECTIVE IN THE TREATMENT OF INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME REFRACTORY TO CONVENTIONAL TREATMENT

Jiang Y, Chung S, Kuo Y, Kuo H.

Jiang and colleagues from Taiwan evaluated the efficacy and safety of repeated intravesical onabotulinumtoxinA (BoNT-A) injections for treatment of IC/BPS. A total of 31 patients confirmed to have IC/BPS and refractory to conventional treatments were treated with intravesical injections of 100 U of BoNT-A plus hydrodistention every 6 months for up to 4 times. Primary end-point was 6 months after the fourth BoNT-A injection. Measured parameters included O'Leary-Sant symptom score (OSS) including symptom and problem indexes (ICSI/ICPI), visual analogue score (VAS) for pain, voiding diary variables, urodynamic parameters, maximal bladder capacity (MBC), glomerulation grade, and global response assessment (GRA). The results of this study demonstrated that repeated intravesical injections of BoNT-A increase FBC, CBC and provided long-term pain relief in 61% of patients with IC/BPS who were refractory to conventional treatment. **Patients with Hunner's ulcer are poor candidates for this treatment.** Glomerulations after hydrodistention, but not MBC, also showed significant improvement after repeated BoNT-A injections. These therapeutic effects could involve not only inhibiting release of acetylcholine in the neuromuscular junctions of the detrusor, but also an anti-inflammatory response. It was concluded that four repeated intravesical BoNT-A injections were safe and effective for pain relieve and increased FBC and CBC in patients with IC/BPS. Improvement of bladder glomerulations and pain relief were more prominent than the reduction of frequency or nocturia after BoNT-A treatment.

Abstract 604

PREDICTIVE FACTORS FOR SUCCESSFUL BOTULINUM TOXIN A INJECTIONS FOR REFRACTORY INTERSTITIAL CYSTITIS/PAINFUL BLADDER SYNDROME.

Kuo Y, Lai M, Kuo H

Although intravesical injection of botulinum toxin A (BoNT-A) has been proved to be promising in treating patients with interstitial cystitis/painful bladder syndrome (IC/PBS), what kind of patients may benefit from this treatment modality remains unclear. Kuo and colleagues from Taiwan conducted this study in order to try to find out the predictors for a successful treatment outcome. Patients with IC/PBS who failed conventional treatments were prospectively enrolled. They underwent intravesical injection of 100 U of BoNT-A immediately followed by cystoscopic hydrodistention under intravenous general anaesthesia. The same treatment was repeated at an interval of 6 months for up to 4 times. A total of 94 patients (13 men and 81 women) who aged 48.1 ± 12.4 years were enrolled in this study. Among them, 83, 63, 44 and 32 patients completed 1st, 2nd, 3rd and 4th times of BoNT-A injection, while 68, 40, 35 and 30 patients completed the follow-up, respectively. As the number of treatment increased from one to four times, the IC/PBS symptom score, pain VAS and FBC significantly improved. The authors found that baseline ICSI represents the independent predictor for both short term and long term use of BoNT-A injection in treating

refractory IC/PBS. More severe neurogenic inflammation involving the bladder, prostate and pelvic cavity may account for a unfavourable treatment outcome. Baseline MBC was found to be an independent predictor for treatment success after long term use of BoNT-A injections. Long term inflammation and destruction of bladder tissue may cause fibrotic change, reduce bladder capacity and thus limit the treatment efficacy of BoNT-A. These results suggest patients with IC/PBS should be diagnosed and treated as early as possible. It was concluded that the baseline ICSI is an independent predictor for single BoNT-A injection, while the baseline ICSI and MBC are predictive factors for long term repeated BoNT-A injections in treating patients with refractory IC/PBS.

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Abstract 713

TREATMENT OF INTERSTITIAL CYSTITIS AND OVER ACTIVE BLADDER WITH BOTULINUM TOXIN TYPE A IN JAPANESE PATIENTS

Maeda Y, Sekiguchi Y

No specific medicine is available for interstitial cystitis (IC), which is therefore now being treated with hydrodistension plus medication. However, most cases are refractory to this treatment and recur after the treatment. On the other hand, many anticholinergic agents are available for over active bladder (OAB), even so about 30% of OAB patients resist medical treatment. In the field of urology, botulinum toxin type A (BTX-A) has been reported to be effective for the treatment of IC and OAB but is not generally medicated because of its disapproval for health care services provided by health insurance in Japan. Maeda and Sekiguchi from Japan report here on their experience with injections of botulinum toxin type A (BTX-A) into the urinary bladder wall for the treatment of intractable IC and OAB. They injected 100 units of BTX-A (Botox®, Allergan Inc.) into the bladder wall, including the trigone, of 9 women and 1 man with a diagnosis of IC and OAB. They evaluated its efficacy by collecting questionnaires before and after the treatment: ICI Questionnaire- Short Form, Overactive Bladder Symptom Score, Interstitial Cystitis Symptom Index and Problem Index, and International Prostate Symptom Score. Every score was reduced after the treatment compared to before and a part of difference was statistically significant. There was an improvement in symptoms of urinary storage.

Abstract 718

THE ROLE OF BLADDER HYDRODISTENTION AND INTRAVESICAL SODIUM HYALURONATE IN THE TREATMENT OF INTERSTITIAL CYSTITIS

Yang J, Wei W, Ye L.

The purpose of this study from China was to evaluate the clinical efficacy of bladder hydrodistention and intravesical sodium hyaluronate in the treatment of interstitial cystitis (IC). 21 patients with IC received intravesical sodium hyaluronate therapy under joint block or intravenous anaesthesia. Bladders were perfused with 100cm H₂O perfusion pressure and expanded for 10min, and then were injected 40mg/50ml sodium hyaluronate via the catheter. After 1h the perfusion fluid was released. Perfusion was applied once a week, 4 to 6 times as a course. The authors found that bladder hydrodistention under anaesthesia for severe intractable PBC / IC patients produces immediate effectiveness; sodium hyaluronic infusion can alleviate frequent urination and pain and the effectiveness and duration of treatment was positively correlated. Bladder hydrodistention combined with therapy of hyaluronic acid infusion showed good recent therapeutic effect.

Abstract 731

COMBINATION OF PELVIC FLOOR BIOFEEDBACK WITH ELECTRIC STIMULATION CAN IMPROVE CHRONIC PELVIC PAIN, LOWER URINARY TRACT SYMPTOMS AND SEXUAL DYSFUNCTION IN PATIENTS WITH INTERSTITIAL CYSTITIS / BLADDER PAIN SYNDROME (IC/BPS) – 1 YEAR FOLLOW-UP

Lee M H, Chen W C, Lee S P, Chen Y C, Liu W B, Lin H M, Wu H C, Chen Y L.

The aim of this study from Taiwan was to investigate the effectiveness and different regimen of combination of transvaginal biofeedback (TVBF) plus transcutaneous electric nerve stimulation (TENS) for a follow-up of 12 months in patients with IC/BPS. A total of 56 IC/BPS female patients compatible with the NIDDK criteria were included in this study. Among the patients, 28 were assigned to TVBF plus TENS for one month group (Group-1), 12 were assigned to TVBF plus TENS for 2 months group (Group -2), and 16 were assigned to TVBF plus TENS for 3 months group (Group-3). All patients were treated by TVBF 2 times daily and TENS 2 times a week. After the treatment, all patients were followed up for one year and O'Leary-Sant Symptom (ICSI) and Problem Index (ICPI), bladder pain visual analogue scale (VAS), bladder urgency score, Global response assessment (GRA), and self-report sexual activity were collected at baseline, 3rd month, 6th month, 9th month, and 12th month. Lee and colleagues compared the clinical results and response at different follow-up time in each three groups. They found that the combination of TVBF plus TENS provided a beneficial effect on irritative symptoms, pelvic pain, and sexual activity with little adverse effects. The therapeutic effect could last for 12 months and it seems to be a good choice of conservative treatment.

Abstract 749

SEXUAL DYSFUNCTION IS ASSOCIATED WITH CHRONIC PELVIC PAIN IN PATIENTS WITH INTERSTITIAL CYSTITIS / BLADDER PAIN SYNDROME (IC/BPS)

Wu H C, Chen W C, Lee M H, Lee S P, Liu W B, Lin H M, Chen Y L

The aim of this study from Taiwan was to investigate the differences in the subjective symptoms, urodynamic parameters and anaesthetic bladder capacity of IC/BPS in women with or without sexual pain. A total of 89 IC/BPS female patients compatible with the NIDDK criteria were included in this study. All subjects were asked if they had a history of sexual pain in recent two weeks and were assessed by validated questionnaire including O'Leary-Sant Symptom (ICSI) and Problem Index (ICPI). Pelvic Pain and Urgency/Frequency (PUF) questionnaire was also completed. Standardized consecutive filling cystometry and volume at first desire to void (FDV), normal desire to void (NDV), strong desire to void (SDV) and maximum cystometric capacity (MCC) were performed. Hydrodistension and cystoscopic anaesthetic maximal bladder capacity (MBC) was also measured. Wu and colleagues compared subjects with and without a history of sexual pain disorder. The results of this study revealed that a large portion of IC/BPS patients have dyspareunia. Sexual pain in IC/BPS patients is indeed a bother symptom accompanied by chronic pelvic pain and decrease in bladder capacity in urodynamic examination and hydrodistension. The PUF score was higher in patients with sexual pain disorder group because ICSI and ICPI did not particularly evaluate sexual pain score but PUF did. This suggests that physicians should consider sexual pain disorder in the management of patients with IC/PBS and use the PUF score to evaluate not only irritative lower urinary tract symptoms (LUTS) but also sexual pain disorder.

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