number of the nerve cells was higher in the recombinant nerve growth factor group as compared with the placebo group ($P < 0.05$). The higher dose (0.3 mg/kg of body weight) resulted in greater improvement and greater decrease in the number of mast cells as compared with the lower (0.1 mg/kg of body weight) dose ($P < 0.05$). Recombinant human nerve growth factor was well tolerated and the most frequent side effects were arthralgias (5%), myalgias (4%), and myasthenia and asthenia (2%).

Our results suggest that recombinant human nerve growth factor is safe and shows preliminary evidence of efficacy in patients with IC. Further studies on larger number of patients are needed to address the optimal treatment duration and dose in IC.

ICBR-44

Practice Trends for the Management of Interstitial Cystitis

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Interstitial cystitis (IC) is a syndrome of bladder sensory dysfunction. Multiple forms of evaluation and treatment are available to the IC patient, however, no consensus has been reached regarding optimal management strategies. This study examined current trends in the care of the IC patient amongst those clinicians who see a large number of these patients.

A total of 34 questionnaires were distributed to 33 urologists and 1 urogynecologist throughout the USA who treat large numbers of IC patients (<20 new IC patients per year) and have published on the topic in major peer-reviewed journals. Each questionnaire elicited respondent's opinion regarding the usefulness of various evaluative and therapeutic modalities for IC.

Methods of evaluation deemed "very helpful" (vs "often helpful" or "not usually helpful") included urinalysis (83% of respondents), voiding diary (77%), hydrodistention (65%), and postvoiding residual assessment (55%). Common therapies offered to patients included dietary restrictions (93%), oral agents (93), intravesical therapy (83%), behavioral modification (83%), biofeedback (63%), and physical therapy (57%). Oral agents believed to have the highest efficacy included amitriptyline (59%), pentosan-polysulfate sodium (54%), and nonsteroidal anti-inflammatory drugs (54%). Most frequently employed intravesical therapies included dimethyl sulfoxide cocktail (82%), heparin sulfate (64%), and anesthetic cocktail (50%). When surgery was performed, the most frequently used procedures included cystectomy with ileal conduit (50%), continent diversion (30%), and Hunner's ulcer fulguration (33%).

This study demonstrated management trends for IC by experienced clinicians. The object was to examine current trends and commonalties in the care of the IC patient. The findings may be helpful to the community urologist in formulating a treatment regimen for these patients.

ICBR-45

Alkalinized Intravesical Lidocaine to Treat Interstitial Cystitis: Absorption Kinetics in Normal and Interstitial Cystitis Bladders

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Local anesthetics are increasingly recognized as having powerful broad-spectrum anti-inflammatory effects, including stabilizing mast cells and blocking histamine release. Theoretically they appear to be ideally suited to suppress the neuroinflammatory cycle occurring in interstitial cystitis (IC). However, ion trapping in the bladder results in poor absorption of local anesthetics, with peak serum lidocaine levels reaching 0.1 μg/mL.

To investigate the pharmacokinetics of alkalinized intravesical lidocaine (AIL) in healthy volunteers (HV) and patients with IC in order to determine (1) a safe dose of buffered lidocaine, (2) the effect of IC on lidocaine uptake, and (3) to evaluate the acute local anesthetic effect on bladder pain of IC patients as a prelude to using AIL to treat IC.

An initial dose-finding study was done on 12 HV at 4, 5, and 6 mg/kg of 5% lidocaine buffered with 8.4% sodium bicarbonate. Serial serum levels were measured over 3 hours. The same procedure was performed in 12 IC patients using 5 mg/kg of 5% lidocaine with sodium bicarbonate daily for 3 days. Patients rated their pain (verbal analog score, 1 to 10) before and after treatment on each day.

Both HV and IC groups had similar lidocaine absorption profiles with peak levels occurring at ≈30 minutes. The mean peak was 1.06 μg/mL (range of 0.66 to 1.71 μg/mL) for the HV group and 1.6 μg/mL (range of 0.2 to 2.0 μg/mL) for IC patients. The mean pain scores in the IC group decreased from a baseline of 6.0 to 1.8 on day 1 and to 0.6 on day 2. Both groups complained of temporary urethral discomfort after voiding the buffered lidocaine.

AIL improves lidocaine absorption from the bladder, as indicated by therapeutic systemic lidocaine levels in both healthy and IC patients. Further, the decrease in acute pain scores in the IC group indicated sufficient concentration of local anesthetic within the bladder wall to block the sensory neurons within the submucosal plexus. AIL is a promising candidate for the treatment of IC and warrants further investigation.

ICBR-46

The Efficacy of Calcium Glycerophosphate in the Prevention of Food-Related Flares in Interstitial Cystitis

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To evaluate the efficacy of calcium glycerophosphate (CGP) in improving symptoms and quality of life in a population if interstitial cystitis (IC) with food-related exacerbations.

A total of 379 patients diagnosed with IC were included in this prospective nonrandomized study. Before inclusion, each patient completed a 4-week food diary to confirm food-related flares, an O'Leary-Sant Interstitial Cystitis Symptom and Problem Index (IC Index) to confirm severity of symptoms, and an SF-12 quality of life survey. Patients were then asked to take 2 tablets (0.66 g) of CGP before each meal for 4 weeks and complete the above surveys again after the 4-week period. The specific foods evaluated were pizza, coffee, carbonated drinks, alcohol, acidic fruits and juices, tomato-based products, chocolate, and spicy foods. Posttreatment analysis was performed with the McNemar test comparing symptom reduction versus exacerbation. Pain, discomfort, and

urgency were evaluated on a 10-point severity scale and compared using the sign-rank test.

A total of 203 patients completed the survey, for a response rate of 53.6%. Analysis of attrition demonstrated no difference between the participants and nonparticipants regarding age, severity of symptoms and associated conditions. A decrease in symptom severity was seen in >40% of responders with exacerbation to pizza, coffee, acidic fruits and juices, spicy foods, and tomato-based products. A 20%–30% reduction was seen in responders with exacerbation related to carbonated drinks, alcohol, and chocolate. Pain and discomfort decreased from 5.3 to 3.6 ($P < 0.0001$), whereas urgency was reduced from 5.3 to 4.1 ($P < 0.001$). Regarding quality of life issues, the majority of responders had a positive change or no change ($P < 0.0001$).

CGP appears to reduce IC symptoms in patients with food-related exacerbations and improve their quality of life.

ICBR-47

Evaluation of Transvaginal Theile Massage as a Therapeutic Intervention for Women with Interstitial Cystitis

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The purpose of this study was to assess the effectiveness of transvaginal Theile massage on high-tone pelvic floor musculature in patients with interstitial cystitis (IC).

A sample of 10 subjects was recruited from a large urban urologic practice that specializes in IC. Subjects had a confirmed diagnosis of IC by bladder overdistention and biopsy and significant complaints of frequency, urgency, and/or pain. Subjects underwent a genitourinary physical exam to elicit and document pelvic floor tone and trigger points as well as an objective evaluation of resting and contracting pressures during a Kegel maneuver. Subjects underwent a total of 6 intravaginal massage sessions using the Theile "stripping technique." This technique encompasses a deep vaginal massage via a "back and forth" motion over the levator ani, obturator internus, and piriformis muscles as well as a myofacial release technique whereas a trigger point was identified, pressure was held for 8 to 12 seconds and then released. Patients were then questioned on their subjective improvement in said symptoms.

A total of 90% of patients showed a subjective improvement in frequency and/or nocturia, urgency, and pain. The digital exam showed a marked improvement in the patient's ability to contract and then relax their pelvic floor musculature.

As a result of the close anatomic proximity of the bladder to its muscular support, it appears that internal vaginal massage can lead to subjective improvement in symptoms of IC. This treatment provides an easy noninvasive method in the ongoing quest to ease the symptoms caused by this disease.

ICBR-48

Medical Therapy in Interstitial Cystitis: The Essex Experience

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Interstitial cystitis (IC) is a chronic idiopathic inflammatory disorder of the bladder, the treatment of which is often varied and meets with limited success. The etiology of IC is ill understood, and selection of an appropriate nonsurgical treatment option is often disappointing. In recent years there has been greater understanding of the role of H_2 receptor antagonists (H2RA) on the bladder, which include binding to suppresser T cells and preventing release of mast cell histamine, which has encouraged the use of H2RA as a simple oral option in the treatment of IC. Treatment and follow-up in 69 patients with IC treated with H2RA over a 4-year period demonstrated a 74% (51 patients) symptomatic response rate with 34 (67%) patients having complete relief of all symptoms and 17 (33%) having relief of pain only. Recent placebo vs H2RA studies have confirmed the value of H2RA in providing symptomatic relief in patients with IC. In the United Kingdom, Elmiron (sodium pentosan polysulfate) has met with little success, with little difference in symptomatic relief being demonstrated when compared with placebo. In a small study, 17 patients previously unresponsive to oral /instillation therapy were treated with a combination of Elmiron + H2RA (cimetidine). Twelve (70%) patients had a good response to therapy over a 22-month period with relief of all symptoms in 6 patients or abolition of pain only in 6 others. Recent understanding of the role of H2RA in IC has encouraged the use of oral therapy in the management of IC and reduced the need for surgical intervention.

ICBR-49

Interstitial Cystitis in Males

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Interstitial cystitis (IC) is uncommon in males. As a result, little is known about IC in male patients. We retrospectively reviewed male patients treated at our institution over the last 10 years to define the clinical presentation and course of disease in these patients.

We retrospectively reviewed the records of male patients treated for IC at our institution between 1989 and 1998. We identified 51 patients with a diagnosis of chronic cystitis and 44 of these met National Institutes of Health criteria and were included for study. All patients underwent initial detailed history and physical examination, routine blood tests, urinalysis, urine culture, urine cytology, upper tract evaluation if not previously done, urodynamics when indicated, and anesthetic cystoscopy with bladder biopsy.

Mean patient age was 49.5 years (range, 23 to 78 years). There were 6 African Americans in the study group. Mean duration of symptoms before diagnosis was 4.5 years (range, 6 months to 15 years). Seventeen (39%) patients had a prior diagnosis of chronic prostatitis and had received multiple courses of antibiotics and other drugs before diagnosis. Fifteen (34%) patients had undergone transurethral resection of the prostate (TURP) to no avail. Anesthetic cystoscopy revealed glomerulations or more severe inflammatory changes in all patients and Hunner's ulcers were seen in 4 patients. Most patients experienced some symptom improvement after cystoscopy and hydrodistention with mean duration of improvement of 3 months (6 weeks to 1 year). Patients were treated with a variety of medications, including amitriptyline, hydroxyzine, analgesics, anticholinergics, pentosan polysulfate, and dimethyl sulfoxide either alone or in combination with heparin, steroids, and sodium bicarbonate. Fourteen (32%) ultimately required surgical treatment because of low bladder capacity or