Kenalog Injection into Hunner’s Lesions as a Treatment for Interstitial Cystitis/Bladder Pain Syndrome

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Abstract
Introduction: This study aims to evaluate the effectiveness of kenalog injection into Hunner’s lesions. Materials and Methods: All patients had cystoscopy and bladder hydrodistention with corticosteroid injection into Hunner’s lesions over a 2.5-year period. Data include patient characteristics and pre- and post-operative validated questionnaires. Spearman Correlation and Wilcoxon t-tests were used for analysis. Results: One hundred patients were reviewed retrospectively. There was a 1.1 point decrease in pain at 12 weeks post-operation (p = 0.435). Urinary frequency decreased from a mean of 11.7 to 9.1 daily episodes (p = 0.05), and nocturia from a mean of 3 to 1.6 nightly episodes (p = 0.008). Conclusion: The use of a corticosteroid may be beneficial to symptom control and improvement in the quality of life of interstitial cystitis/painful bladder syndrome patients. Patients had improved frequency and nocturia 12 weeks post injection.
when an expert physician in interstitial cystitis performs cystoscopy and hydrodistension. While there is no consensus on the treatment for Hunner’s lesions, it has been noted anecdotally that treatment of these lesions results in significant improvement in the bladder pain and other associated symptoms of IC/PBS. A study published in 2006 by Payne et al. [3] reported a mean improvement of 76% in symptom score with endoscopic ablation (fulguration or resection) of these lesions. Another study published in 2009 by Cox et al. [4] reported a 70% improvement in QOL in 30 patients with Hunner’s lesions treated with kenalog injections. At our institution we are routinely treating Hunner’s lesions and mucosal cracks with kenalog plus marcaine, a corticosteroid/analgesic injection, as a standard of care. Patients with mucosal cracks after hydrodistention were included in the Hunner’s lesion group.

Our hypothesis is that those patients with interstitial cystitis who are found to have Hunner’s lesions will have symptomatic improvement, including decrease in daily and night-time episodes of voiding, as well as QOL improvement, when lesions are treated with kenalog corticosteroid injection.

Materials and Methods

Subjects for this study were all female patients previously diagnosed with IC/PBS and treated by one physician in a private practice. We retrospectively analyzed all patients who underwent a cystoscopy, bladder hydrodistention, and kenalog injections into Hunner’s lesions and mucosal cracks from December 2009 until July 2012. This was the first cystoscopy these patients underwent, as part of their IC/BPS workup. All patients had similar procedures: cystoscopy with a 21 French, 30° cystoscope, bladder visualization under white light and narrow band imaging, maximal anesthetic capacity found with 80 cm H₂O pressure for a duration of 2 minutes, reimaging using white light and narrow band imaging following hydrodistention, and injection of kenalog into Hunner’s lesions. Kenalog was administered submucosally at the site of the lesion (60 mg per lesion with 5 ml 0.25% marcaine and 5 ml saline, with a 200 mg kenalog maximum).

Prior to their respective procedures, the following information was collected from each patient: demographics, co-morbidities, history of bladder-related symptomology, urodynamics, prior bladder treatments, and questionnaires utilizing patient reported outcomes to assess symptom and problem indices of IC/PBS. Questionnaires included: O’Leary Sant Interstitial Cystitis Symptom and Problem Indices (ICPI), Visual Analogue Scale for pain (VAS-P), Pelvic Floor Impact Questionnaire and Female Sexual Function Index. Post-operative assessment was done at week 12.

Statistical analysis included Wilcoxon t-test and Spearman Correlation.

Results

A total of 100 patients who were diagnosed with IC/PBS underwent a cystoscopy with bladder hydrodistention and received submucosal corticosteroids into Hunner’s lesions or mucosal cracks. The mean age was 57 ± 11.3 (range 16-81) years and the mean body mass index was 28.3 ± 1.4 kg/m². Of the patient population 96% was Caucasian.

Pre-operative questionnaires also revealed a baseline mean ICPI of 10.44 ± 4.1 (n = 64), IC Symptom Index of 10.11 ± 4.7 (n = 64), and bladder Pelvic Floor Impact Questionnaire of 46.4 ± 32.2 (n = 40). A total of 69 patients underwent urodynamics pre-operatively with a mean bladder capacity of 429 ± 214 ml and 45% (n = 32) had a diagnosis of sensory urgency. The average maximal urethral closure pressure was 128 cmH₂O. Mean maximum anesthetic capacity was 788.8 ± 246.6 ml.

There was a decrease in VAS from a mean of 5.1 ± 2.9 to 4.0 ± 2.9 at 12 weeks post-operatively (p = 0.435). A significant decrease was observed in urinary frequency from a mean of 11.7 ± 6.0 to 9.1 ± 6.0 voids/day (p = 0.05). Nocturia from a mean of 3 ± 2.8 to 1.6 ± 1.8 nightly episodes (p = 0.008). Preoperatively, 65.5% (55/84) complained of urgency. At week 12, 58% complained of urgency (25/43).

A higher VAS score pre-operatively was inversely correlated with maximal anesthetic bladder capacity during cystoscopy (p = 0.003). Finally, a higher pre-operative maximal urethral closure pressure was directly correlated with a higher ICPI score (p = 0.02).

Discussion

IC/PBS is a complex and challenging syndrome to treat. The diagnosis of IC/PBS is made in patients with chronic bladder pain without any underlying etiology for the symptoms. The current AUA guidelines require the duration of symptoms to be at least 6 weeks. These patients typically present with bladder pain, pressure or discomfort that worsens with bladder filling and is relieved with bladder emptying. They also report associated lower urinary tract symptoms such as frequency, urgency and nocturia. The European Society for the Study of Interstitial Cystitis maintains that PBS would be diagnosed on the basis of chronic pelvic pain, pressure, or discomfort perceived to be related to the urinary bladder accompanied by at least one other urinary symptom such as persistent urge to void or urinary frequency [5]. This condition
is most commonly diagnosed in the fourth decade or later and is 5 times more common in women than in men. It is often associated with other chronic pain syndromes such as irritable bowel syndrome, fibromyalgia, vulvodynia, endometriosis, chronic fatigue syndrome, and fibromyalgia [2]. Dyspareunia and high tone pelvic floor dysfunction are present in up to 80% of patients. Prevalence estimates of IC/PBS are difficult to find since the diagnostic criteria have varied in the past but an epidemiology study of 150,000 households estimated it be prevalent in 2.7 to 6.5% of women in the United States [6].

There remains a lack of consensus on how to treat IC/PBS patients. Intravesical pathology is one target of future treatment regimens. Few studies have demonstrated the efficacy of kenalog injections into Hunner’s lesions. This study was an initial investigation into the subset of IC/PBS patients with Hunner’s lesions including mucosal cracks. The use of a corticosteroid may be beneficial for symptom control and improvement in the QOL of IC/PBS patients, as corroborated by pre- and post-operatively administered validated questionnaires. The findings of decreased nocturia and frequency were found to be significant. Although daily pain was improved, it was not significant.

Interestingly, there were some associations between urodynamics and pain scores in those patients found to have Hunner’s lesions. We have not identified any existing literature describing any relationship of urodynamic results and the presence of Hunner’s lesions. Higher preoperative daily pain scores were found in patients with smaller bladder capacity, as an inverse correlation. Thus, a noncompliant bladder with fibrosis and scarring may have a smaller maximal anesthetic capacity and higher daily pain scores. Similarly, maximal urethral closure pressure was directly correlated to higher ICPI score. Questions on the ICPI ask if a patient perceives a problem with frequent urination, need to urinate during the night, need to urinate with little warning, and pain, discomfort, or pressure in the bladder. Perhaps, in this subset of patients it is the high urethral tone that is contributing to and overlapping the symptoms of interstitial cystitis. For future studies we could try to exclude this group of patients to isolate pain associated interstitial cystitis and Hunner’s lesions.

This study is limited in its small sample size, lack of randomization, and missing clinical data. While we did have a large number of cases, we lacked completeness of questionnaires. This study is ongoing at our institution; we are currently further analyzing similar data from patients with no Hunner’s lesions to be used as a control group. Using a control group who only received bladder hydrodistention may also reveal more information on the therapeutic effect of distention versus injection in the lesions. Future randomization would be ideal with control groups receiving marcaine and/or saline injections into their lesions. Exclusion of patients with mucosal cracks and not definitive Hunner’s lesions may also improve the results, which begs for a better definition of cystoscopic findings at the time of hydrodistention for Hunner’s lesions.

Conclusion

Kenalog injection to Hunner’s lesions appears to improve symptoms of nocturia and urinary frequency in this small study.

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