

IN WHAT TYPE OF INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME IS DMSO INTRAVESICAL INSTILLATION THERAPY EFFECTIVE?

Hypothesis / aims of study

The etiology of interstitial cystitis (IC)/bladder pain syndrome (BPS) is unclear, and there is no definitive method of treatment. There are two types of IC/BPS, i.e., IC/BPS with Hunner's lesions and IC/BPS with glomerulation alone. IC/BPS with Hunner's lesions is thought to be an independent disease, and IC/BPS with glomerulation alone is thought to have many phenotypes. Hydrodistension followed by transurethral resection (TUR) and fulguration is known to be an effective means of treating Hunner's lesions¹. While the recommendation level of intravesical instillation of dimethylsulfoxide (DMSO) as a method of intravesical instillation therapy is high, which type of IC/BPS it is effective against has been rarely reported².

Study design, materials and methods

Hydrodistension followed by transurethral coagulation (TUC) has been performed to treat IC/BPS with Hunner's lesions at our hospital since 2005. We therefore conducted a retrospective study of consecutive cases of IC/BPS in which hydrodistension had been performed in 2003–2004, when TUC was not being performed. We combined DMSO with hydrodistension in 2003 and from 2004 we performed hydrodistension alone.

Hydrodistension had been performed in 7 cases of IC/BPS with Hunner's lesions (H group) and 7 cases of IC/BPS without Hunner's lesions (non-H group), and they served as the control group (C group; n = 14). There was also a DMSO group (D group; n = 14) that consisted of an H group of 7 cases and a non-H group of 7 cases in which the hydrodistension had been immediately followed by intravesical instillation of 50%DMSO 50 ml once a week for a total of 8 times, once every 2 weeks for a total of 8 times, and once every 4 weeks thereafter.

Before, and 2, 6, 12, 18, and 24 months (M) after the intervention, the patients were asked to complete a 4-day frequency-volume chart (FVC) and the O'Leary-Sant IC Symptom Index (ICSI) questionnaire and IC Problem Index (ICPI) questionnaire, and to rate their pain on a visual analog scale (VAS).

Results

Between 6M and 12M there was a recurrence in 1 case each in the non-H group of both the C group and D group. Between 12M and 18M there was a recurrence in 1 case in the H group of the C group, and between 18M and 24M there was a recurrence in 1 case in the H group of the D group.

Preoperative average voided volume (AVV) was 98 ± 36 ml in the C group and 70 ± 32 ml in the D group ($p < 0.04$), and maximum voided volume (MVV) was 178 ± 59 ml in the C group and 134 ± 54 ml in the D group. Both the AVV and MVV values in the D group were significantly higher than before hydrodistension throughout their course, but in the C group the differences in MVV from 12M after hydrodistension onward were not significant in comparison with before hydrodistension.

The preoperative ICSI score was 12.6 ± 3.7 in the C group and 16 ± 3.6 in the D group ($p < 0.02$), and the ICPI score was 11.9 ± 3.7 in the C group and 13.4 ± 2.5 in the D group. The ICSI score and ICPI score in both groups had significantly improved after hydrodistension in comparison with before hydrodistension. From 6 months after hydrodistension onward both the ICSI scores and ICPI scores were significantly lower in the D group than in the C group.

The preoperative pain score on the VAS was 5.6 ± 2.6 in the C group and 5.6 ± 3.1 in the D group, and with the exception of the C group at 12M after hydrodistension, the scores had significantly improved in both groups throughout their course.

In the H group, both the AVV and MVV values in the D group tended to be higher and AVV at 18M after hydrodistension was 106 ± 36 ml in the C group and 211 ± 97 ml in the D group ($p < 0.03$) (Figure 1). In the H group, the ICSI, ICPI, and VAS at 12M after hydrodistension were 11.6 ± 5.0 , 7.7 ± 3.5 , and 5.7 ± 1.9 in the C group and 4.6 ± 3.4 , 2.4 ± 3.4 , and 1.5 ± 2.3 in the D group, respectively ($p < 0.01$) (Figure 2.).

Interpretation of results

All parameters were improved after hydrodistension in both the C group and the D group.

However, comparison of the C group and D group according to whether Hunner's lesions were present showed that there were no significant differences in any of the postoperative parameters between the non-H groups in the C group and D group, but in the H groups, AVV was significantly higher and the ICSI, ICPI, and VAS scores were lower in the D group. Moreover, the significant differences increased with the duration of the postoperative period.

Concluding message

DMSO intravesical instillation therapy did not have any particular efficacy in the treatment of IC/BPS in the absence of Hunner's lesions, but it was useful in both maintaining and improving the effectiveness of hydrodistension in IC/BPS with Hunner's lesions. The small number of cases, the fact that the data analysis of only recurrence-free cases may not have reflected the true situation, and the fact that it was a retrospective study were limitations of this study.

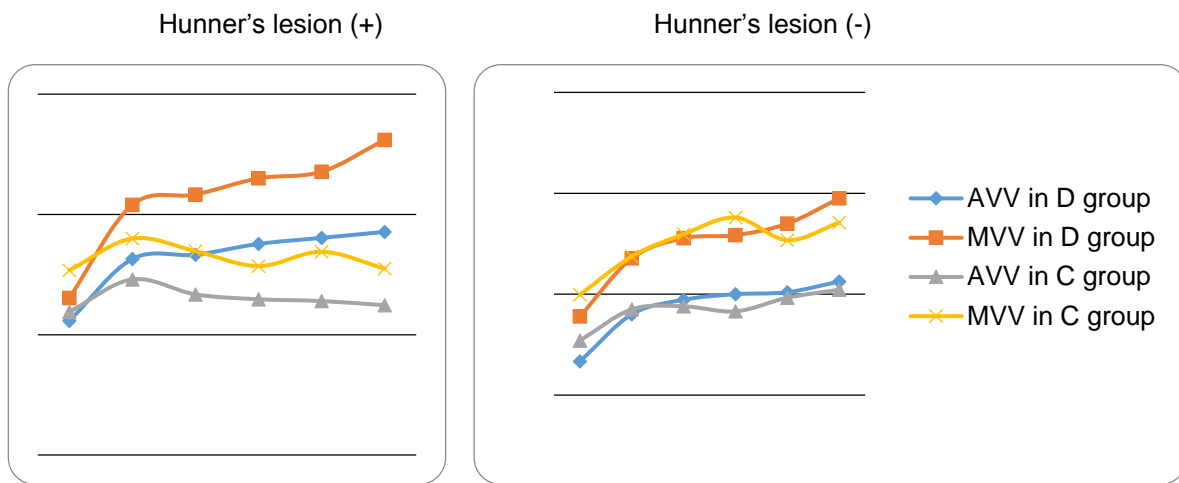


Figure 1. AVV/MVV in D group vs C group

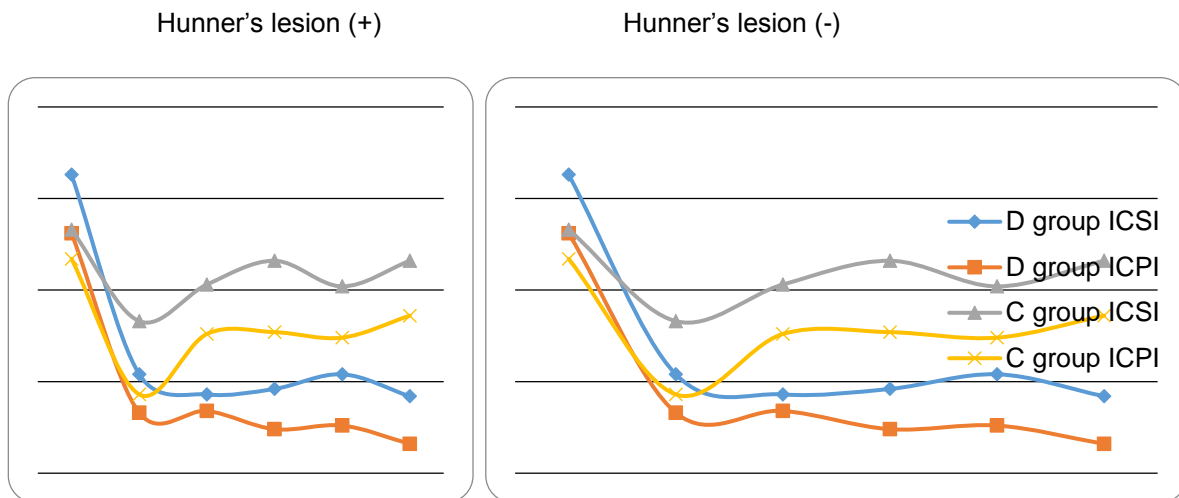


Figure 2. ICSI/ICPI in D group vs C group

References

1. Peeker R, Aldenborg F, Fall M. Complete transurethral resection of ulcers in classic interstitial cystitis. *Int Urogynecol J Pelvic Floor Dysfunct.* 2000; 11(5): 290-5.
2. Peeker R, Haghsheno MA, Holmäng S, Fall M. Intravesical bacillus Calmette-Guerin and dimethyl sulfoxide for treatment of classic and nonulcer interstitial cystitis: a prospective, randomized double-blind study. *J Urol.* 2000; 164(6): 1912-5.

Disclosures

Funding: None **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics not Req'd:** the treatment for IC/BPS was not established in my hospital ten years ago and all made trial and error in those days. **Helsinki:** Yes **Informed Consent:** Yes