

## A LONG TERM STUDY OF INTRAVESICAL DIMETHYL SULFOXIDE (DMSO) THERAPY FOR INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME (IC/BPS)

### Hypothesis / aims of study

IC/BPS is a syndrome of unsolved 21st century urological mystery. To date, no curative treatment is available for this syndrome. DMSO was adopted in the mid-1990 for vesical instillation, and there have been promising results. However, the relapse rate was around 40% during a 24 month follow up period [ref.1]. There is little information on its efficacy in the long term.

The objective of this study is to evaluate the long term efficacy (more than 5 years) of intravesical DMSO therapy on women patients with IC/BPS.

### Study design, materials and methods

Following ethics approval, IC/BPS patients followed at least 5 years who were treated with DMSO therapy were surveyed with the O'Leary Sants (OLS) interstitial cystitis symptom and problem index questionnaires before and after therapy. Chart reviews were also conducted. All patients were performed standardized cystoscopy and bladder hydrodistention according to the European Society for the Study of IC/BPS recommendations. Patients furthermore underwent multiple systematic biopsies of the bladder for diagnosis. In our hospital, DMSO therapy was performed in two steps (initial and maintenance). A 12-Fr catheter was passed into the bladder, and the residual urine was drained. After intravesical lidocaine anesthesia, 50 ml of DMSO (50% aqueous solution of DMSO) was applied and the catheter was removed. Patients were asked to hold the solution in their bladder for 20 minutes. Weekly instillations were administered in all patients for 6 weeks as initial DMSO therapy. Patients who are refractory to initial therapy were performed again customized to match the situation of a patient, as maintenance DMSO therapy. Pain was evaluated using the visual analog scale (VAS). We calculated daytime frequency, nighttime frequency, and the urgency of voids which were taken from the bladder diaries, and we measured quality of life with the OLS IC/BPS Index. Statistical analyses included paired and unpaired t-test.

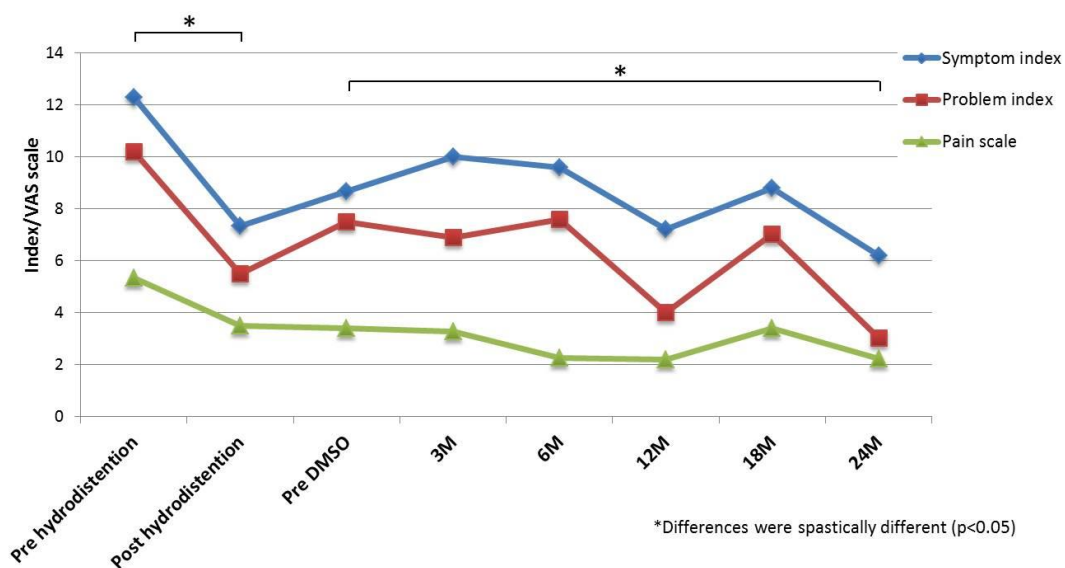
### Results

Total number of patients was 12 with a median age of 70 years (range 31 - 79); the median average follow-up duration was 6.4 years (range 5.7 - 10.9). And hydrodistension revealed Hunner's lesions in 8 patients. The reason of initial DMSO therapy induction; 3 patients were failed bladder hydrodistension, and 9 patients were symptomatic worsening during follow up. At long term follow up after initial DMSO therapy, no patient was cured and 4/12 patients were significantly improved & required ongoing oral medication therapy only. Of those who required further therapy, 7/12 patients underwent further maintenance DMSO therapy and 2/12 women preceded to cystectomy. The number of maintenance DMSO therapy was 6 to 42.

Symptomatic and quality of life improvements after the initial and maintenance DMSO therapies are presented in figure 1.

After bladder hydrodistention therapy, improvements were apparent for symptom index, problem index and pain scale compared to pre bladder hydrodistention therapy. After DMSO therapy, symptom index, problem index and pain scale were significantly decreased compared to pre DMSO therapy only 24 months after DMSO therapy. An improvement in the mean daily number of micturition ( $P < 0.05$ ) was noted as well. The significant improvements in OLS & pain scores would suggest that DMSO therapy was helpful in avoiding exacerbation of symptoms and that at long term follow up, patients receiving various therapies were also improved. There were no significant differences in any of the post DMSO therapeutic parameters between patients with and patients without Hunner's lesions. Although all patients feel a garlic taste and body odor and discomfort caused by catheterization, there are no severe complications, multiple DMSO therapy in our study appears to be safe.

Figure 1



#### Interpretation of results

Long term follow up of at least 5 years, intravesical DMSO therapy is moderately effective in the treatment of IC/BPS with 33.3 % of subjects either requiring no further treatment or only requiring oral medical therapy. Although, 58.3 % of subjects required multiple courses of DMSO therapy as maintenance DMSO therapy, they can avoid surgical procedures.

#### Concluding message

Maintenance DMSO therapy could a reasonable treatment option for refractory IC/BPS.

#### References

1. Urology. 1987; 29; 17-21

#### Disclosures

**Funding:** none **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Hokkaido University Hospital Ethics Committee  
**Helsinki:** Yes **Informed Consent:** Yes