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# Medium term follow-up of interstitial cystitis patients following treatment with a DMSO cocktail

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# Interstitial cystitis/PBS/CPPS

Interstitial cystitis (IC) is a chronic inflammatory bladder condition resulting in bladder / urethral / pelvic pain and often urinary urgency and frequency.

Typified by exacerbations, remissions and varying degrees of symptom severity

# Aetiology



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- ❖ Unknown
- ❖ Dysfunctional bladder epithelium (GAG layer)
- ❖ Bacterial or viral infection
- ❖ Mast cell activation
- ❖ Neurogenic inflammation
- ❖ Autoimmune disease
- ❖ Vascular or lymphatic obstruction
- ❖ Systemic condition (FM, CPPS, IBS)



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# Incidence

- ❖ 0.1% to 1.0% (60/100,000 women)
- ❖ Women to Men 10:1
- ❖ Significant impact on QoL
- ❖ Economic impact
- ❖ Social impact



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# Symptoms

- ❖ Pain
  - ❖ Urethral
  - ❖ Perineal
  - ❖ Suprapubic
  - ❖ Vaginal
- ❖ Pressure
- ❖ Urinary frequency
- ❖ Urinary urgency
- ❖ Nocturia

# Diagnosis



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- ❖ History
  - ❖ -nature of pain, freq, vol, UTI, pelvic surgery, radiation, drugs, co-morbidities
  
- ❖ Questionnaires
  - ❖ -O'Leary Sant, VAS, PUF,
  - ❖ -baseline and monitor response, research
  
- ❖ Examination
  - ❖ -vulval, vaginal, urethral, uterine, adnexal pathology

# Diagnosis



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- ❖ Basic Investigations
  - ❖ bladder diary, urine culture, cytology,
- ❖ U/S, laparoscopy
- ❖ Urodynamics
  - ❖ reduced awake capacity and pain
- ❖ Urinary markers
- ❖ Delay in diagnosis
  - ❖ 3-5 doctors, 3-5 years



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# Cystoscopy

- ❖ Exclude other conditions
- ❖ Record nature, extent & location of
  - ❖ fissures
  - ❖ ulceration
  - ❖ haemorrhage
  - ❖ bladder capacity
- ❖ Hydrodistension for therapeutic benefit
- ❖ Bladder biopsy

# Cystoscopy



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- ❖ Hunner 1915
- ❖ Ulcer: “a dead white scar area with a small congested area in the immediate neighbourhood”







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# Management options

- ❖ Education
- ❖ Support & counselling
- ❖ Behavioural change & stress reduction
- ❖ Dietary modification
- ❖ Symptom reduction
  - ❖ Oral medications
  - ❖ Surgical interventions
  - ❖ Intravesical treatments



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# Dimethylsulphoxide (DMSO)

Intravesical Dimethyl Sulphoxide (DMSO) (a chemical solvent with anti-inflammatory, analgesic, muscle relaxant mast cell inhibition and collagen dissolution properties) has been used to treat IC. However there is little data on its' effect in the medium term.



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# Study background

- ❖ Ethics Committee approval was obtained
- ❖ There were no funds or grants received for this study

# Aim



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To prospectively evaluate the efficacy of DMSO therapy in the short and medium term

# Study Design



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- ❖ Prospective evaluation before therapy, immediately after therapy and at follow up Jan 2011
  - ❖ O'Leary Sant symptom and problem scores
  - ❖ Pain score
  - ❖ Bladder diary
  - ❖ Further treatment



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# Methods

- ❖ 44 women enrolled during 2009 - 2011
- ❖ Treated with dimethylsulphoxide (DMSO) cocktail
  - ❖ DMSO 40% with bupivocaine 1.25%, hydrocortisone 100mgs and heparin 5000 $\mu$
  - ❖ 12 treatments over 8 weeks



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# Methods

- ❖ Surveyed with O'Leary Sant problem & symptom index questionnaire
- ❖ 3 day bladder diary
- ❖ Estimation of frequency
- ❖ Pain score
- ❖ Administered pre, post and at time of follow-up

# O'Leary Sant Symptom & Problem Index



## Interstitial Cystitis Symptom Index

- Q1. *During the past month*, how often have you felt the strong need to urinate with little or no warning?
0. \_\_\_ not at all
  1. \_\_\_ less than 1 time in 5
  2. \_\_\_ less than half the time
  3. \_\_\_ about half the time
  4. \_\_\_ more than half the time
  5. \_\_\_ almost always
- Q2. *During the past month*, have you had to urinate less than 2 hours after you finished urinating?
0. \_\_\_ not at all
  1. \_\_\_ less than 1 time in 5
  2. \_\_\_ less than half the time
  3. \_\_\_ about half the time
  4. \_\_\_ more than half the time
  5. \_\_\_ almost always
- Q3. *During the past month*, how often did you most typically get up at night to urinate?
0. \_\_\_ none
  1. \_\_\_ once
  2. \_\_\_ 2 times
  3. \_\_\_ 3 times
  4. \_\_\_ 4 times
  5. \_\_\_ 5 or more times
- Q4. *During the past month*, have you experienced pain or burning in your bladder?
0. \_\_\_ not at all
  2. \_\_\_ a few times
  3. \_\_\_ almost always
  4. \_\_\_ fairly often
  5. \_\_\_ usually

Add the numerical values of the checked entries; total score: \_\_\_\_\_

## Interstitial Cystitis Problem Index:

*During the past month*, how much has each of the following been a problem for you?

- Q1. Frequent urination during the day?
0. \_\_\_ no problem
  1. \_\_\_ very small problem
  2. \_\_\_ small problem
  3. \_\_\_ medium problem
  4. \_\_\_ big problem
- Q2. Getting up at night to urinate?
0. \_\_\_ no problem
  1. \_\_\_ very small problem
  2. \_\_\_ small problem
  3. \_\_\_ medium problem
  4. \_\_\_ big problem
- Q3. Need to urinate with little warning?
0. \_\_\_ no problem
  1. \_\_\_ very small problem
  2. \_\_\_ small problem
  3. \_\_\_ medium problem
  4. \_\_\_ big problem
- Q4. Burning, pain, discomfort, or pressure in your bladder?
0. \_\_\_ no problem
  1. \_\_\_ very small problem
  2. \_\_\_ small problem
  3. \_\_\_ medium problem
  4. \_\_\_ big problem

Add the numerical values of the checked entries; total score: \_\_\_\_\_



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# Demographics

Age	44 (SD18.7)
BMI	24.8 (SD4.4)
Time since diagnosis	81% (treated within 2 years)
Previous cystodistension	41.5% (without symptomatic improvement)
DMSO courses	83.3% 1 course 4.8% 2 courses 11.9% 3 courses
Mean follow-up	2.15 years (SD1.9)

# O'Leary Sant problem index



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4 questions asked

Over the past month-

- ❖ Frequent urination (daytime)
- ❖ Nocturia
- ❖ Urgency
- ❖ Burning, pain, discomfort & pressure

Total possible score 16



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# O'Leary Sant symptom index

4 questions asked

Over the past month-

- ❖ Strong need to urinate
- ❖ Frequency (< 2 hrs)
- ❖ Number of nocturia episodes
- ❖ Frequency of pain & burning

Total possible score 16



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# Results

	Pre DMSO	Post DMSO	March 2011	P value
Total problem index score	13.1(SD3.1)	7.6(SD4.8)	7.9(SD4.9)	<0.001
Total symptom index score	12.6(SD3.1)	8.1(SD4.4)	7.8(SD4.9)	<0.001
Pain score	6.41(SD2.4)	3.94(SD2.8)		<0.001
Daytime frequency	11-15	6-10	6-10	<0.02
Nocturia	2.9	2.5	2.73	<0.18



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## Further treatment since DMSO

- ❖ 25/44 (56.8%) no further treatment
- ❖ 7/44 (15.9) top-up DMSO
- ❖ 12/44 (27.3%) further invasive therapy
  - ❖ 9/44 Botulinum toxin
  - ❖ 2/44 sacroneuromodulation
  - ❖ 1/44 cystectomy



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# Conclusion

- ❖ Combination of DMSO, hydrocortisone and heparin instilled into the bladder is moderately effective in improving frequency, urgency and pain symptoms in women with interstitial cystitis. Its effects seem to persist for a mean follow-up of 2 years



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Thankyou.