THE TREATMENT OF INTERSTITIAL CYSTITIS BY ACUPUNCTURE

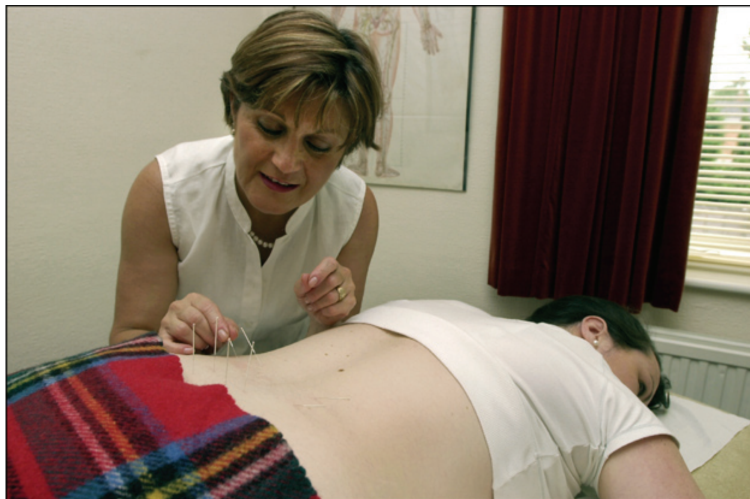
by Toni Tucker

What is interstitial cystitis?

Interstitial cystitis (IC) is defined as "a chronic, benign, non-bacterial, inflammatory, haemorragic disease of the bladder". Initially it may resemble a bacterial infection of the bladder, but it is resistant to antibiotics. The prinicipal symptoms of IC are pain, urgency and frequency of urination.

IC occurs mainly in women (90% of cases) and is rarer in men (10% of cases) in whom it may be misdiagnosed as prostatitis. IC is also found in children, although according to the official criteria the diagnosis may not be confirmed until the age of 18. It is estimated that the incidence of IC in the US female population is 67 per 100,000[1], whilst a Finnish study[2] estimated an incidence of 450 per 100,000 women.

Epidemiological studies indicate that it may take several years to obtain an accurate diagnosis of IC and that IC patients score worse on quality of life measures than dialysis patients with end stage renal disease (US Interstitial Cystitis Association)[3]. IC patients can experience severe pelvic pain and the need to urinate as often as every 10 to 15 minutes during both the both day and night. Some are housebound, and many are unable to work or care for their families. The intractable pain of IC can even cause sufferers to commit suicide.



The symptoms of IC may follow surgery such as hysterectomy or other gynaecological operation, childbirth, or a severe bacterial infection of the bladder. However in many cases symptoms appear for no apparent reason.

IC is characterised by spontaneous flare-ups and periods of remission. In women there may be a cyclical pattern, with symptoms worsening prior to menstruation, during ovulation or after starting the contraceptive pill.

Symptoms

The symptoms of IC include:

- Pain which is stabbing in the more acute phase, and dull and aching when less acute and after treatment for acute symptoms.
- The pain tends to worsen as the bladder fills, and is normally somewhat relieved after urination.
- Pain is worse with pressure or touch.
- Pain may extend to the lower abdomen (especially the suprapubic region), pelvic floor, lower back (in the region between Sanjiaoshu BL-22 and Dachangshu BL-25), external genitalia, groin or thighs.
- In women there may be vestibular ulceration.
- In men the pain may occur in the penis, testicles, scrotum and perineum.
- In both men and women, sexual intercourse may be painful or even impossible, with women experiencing pain of the vagina, bladder and urethra, and men experiencing pain on ejaculation
- Urinary urgency, the feeling of which may remain after urination.
- Urinary frequency - from every three minutes up to half an hour.
- Emotional distress.
- There may be blood and pus in the urine detected by urine analysis.

Western medicine

Causes of IC

Following considerable research it is now thought that IC is a multi-factorial syndrome characterised by an inflammatory response of the bladder wall that may be based on a number of factors including: mechanical (such as injury to the lumbar spine), allergic, immunological, neurovascular, bacterial or viral and environmental.

History
The name 'interstitial cystitis' was first used by AJ Skene in "Diseases of the Bladder and Urethra in Women" published in 1897, but early knowledge of the disease is more commonly linked to Guy Hunner, a Boston surgeon who described this inflammatory bladder disorder in 1914. Hunner discovered that patients presenting themselves with the above symptoms had a very sensitive bladder lining. Although there were no visible signs on the mucosa of the bladder, he found that when he touched the bladder wall it immediately began to bleed profusely. He also observed inflammation and ulceration in the bladder mucosa that came to be known as Hunnner's ulcer.

The treatment he chose for his patients was silver nitrate bladder instillations that usually had no more than a temporary effect.

Investigations and diagnosis
Diagnosis of IC is often a long and complex process and involves exclusion of other bladder disorders that may give rise to similar symptoms. In some cases IC may be diagnosed even though pain is absent from the presentation.

Diagnosis is made by medical history, urinalysis, cystoscopy, urodynamics and biopsy.

Unfortunately intrusive methods of diagnosis can exaggerate the symptoms of IC and cause burning in the bladder and urethra for several weeks. A bladder biopsy can cause bleeding until the lining of the bladder has fully recovered.

Treatment by Western medicine

Oral medications include: antihistamines, H2 receptor antagonists (e.g. Cimetidine and Ranitidine), antispasmodics and anticholinergics to relax the bladder muscle, pentosan polysulfate sodium (Elmiron), analgesics, sulphasalazine, steroids, tricyclic antidepressants.

Bladder instillations
Medication is applied directly to the bladder and is directly absorbed by the lining of the bladder into the bloodstream. The disadvantages are that the patient has to be catheterised, which can cause pain, risk of infection, and further trauma to the neck of the bladder. *Drugs used for bladder instillation include*: Dimethyl sulfoxide (DMSO), heparin, oxybutynin chloride, disodium cromoglycate, silver nitrate, chlorpactin.

Other intravesical therapies
• subtrigonal injections of analgesics such as Marcain
• laser therapy, mostly for IC patients with Hunner's ulcer, to seal bleeding ulceration
• bladder hydrodistention

Nervous stimulation -TENS
Many IC patients use TENS (Transcutaneous Electrical Nerve Stimulation) as a form of pain control. Mild electric stimulation is generated by a small portable TENS unit which stimulates nerve fibres to block the pain signals transmitted to the brain (the Gate-Control theory). TENS is also believed to increase endorphins, the body's own natural pain-killing chemicals.

Stoller Afferent Nerve Stimulation
This treatment works by sending a mild electric current through a very fine needle inserted near a nerve bundle just above the ankle. This stimulation is then carried to sacral nerves that control the bladder, bowel and pelvic organs.

Sacral nerve stimulation (neuromodulation)
This therapy involves electrostimulation of the sacral nerve.

Surgical removal of the bladder/urinary stoma (urostomy)
In some IC patients surgical removal of the bladder and a urostomy (artificial opening in the urinary tract) seems the only option. However this is not something to be taken lightly, as surgery may lead to other complications such as phantom pain - even when the diseased bladder has gone, pain may still continue to be felt due to the development of new pain nerves in the pelvis.

Bladder augmentation
This is a procedure where the patient's own bladder is enlarged through the addition of a piece of the patient's small intestine. Some patients may subsequently be unable to void and need to use a catheter in order to empty the bladder. It is sometimes chosen as a temporary measure before taking the step to complete bladder removal.

Despite extensive research and clinical studies, no possibility has been found of curing this disease. Treatment is highly individual and no medication or treatment exists that is effective in all IC patients.

IC and other diseases

Certain facts are known about IC which give rise to the suspicion that it could be an autoimmune disease:
- IC is frequently associated with arthritis, systemic lupus erythematosus (SLE), thyroid disorders and Sjogren's syndrome.
- IC occurs 10 times more frequently in women than in men (autoimmune diseases disproportionately affect women).
- No micro-organism or other cause has been found in IC.
- IC is often accompanied by:

Joint pain
Muscle pain
Chronic fatigue
Gastrointestinal disorders
Medicine intolerance
Allergies (including food)
Migraine
Dry mouth
Dry, irritated eyes

Itchy, sensitive skin / skin disorders
Vulvodynia
Non-bacterial prostatitis
Eating disorders
Depression

Chinese medicine

From the perspective of Chinese medicine, IC is a shi (excess) pattern mixed with severe underlying deficiency. Commonly encountered patterns include:

Deficiency of Kidney and Spleen qi

Aetiology and pathology

- Prolonged illness.
- Repeated attacks of bacterial cystitis which were not treated effectively.
- Prolonged and repeated medication to treat IC further damages the qi of the Spleen and the Kidney.
- Sequelae of traumatic injuries such as accidents to the lumbar spine, epidurals and difficult instrumental deliveries.

The function of the Bladder depends on the warming function of Kidney yang which, in turn, is supported by the yang qi of the Spleen. Weakness of the Kidney yang and decline of mingmen fire, therefore lead to impairment of Bladder qi in storing urine and urination.

Stagnation of Liver qi and Liver stagnant fire

Aetiology and pathology

- Emotional upset such as prolonged frustration, anger, hysteria or clinical depression.

The Liver governs the free flow of qi, and if the Liver becomes depressed the qi stagnates leading to impairment of the qi hua (qi transformation) function of the Bladder and hence pain.

The Liver channel travels to the pelvis and encircles the external genitalia, hence stagnation and obstruction of Liver qi leads to conditions such as vulvodynia and, if damp-heat is also present, to pruritis of the urethra.

If stagnant Liver qi transforms to heat, it may descend to the lower jiao along the Liver channel and impair the function of the Bladder and pelvic floor.

Blood stasis in the lower jiao

Aetiology and pathology

- Difficult labour and childbirth or traumatic injury.
- Prolonged stagnation of Liver qi or damp-heat.

Blood stasis is usually associated with piercing or stabbing pain, especially on urination.

Deficiency of zheng (anti-pathogenic) qi

Aetiology and pathology

- Deficiency of the Spleen and Stomach as a result of poor or irregular diet.
- Difficult pregnancy and childbirth.
- Prolonged illness such as post-viral syndrome, myalgic encephalomyelitis (M.E.) etc.

Accumulation and sinking of damp-heat

Aetiology and pathology

- Deficiency of Spleen qi impairs the transformation of clear and turbid fluid and results in accumulation of dampness, which over time transforms into damp-heat.
- Excessive consumption of spicy, greasy food and alcohol.
- Repeated attacks of bacterial cystitis which have been ineffectively treated.
- Invasion of exogenous damp cold which transforms into damp-heat.
- Invasion of exogeneous dampness (which transforms internally to damp-heat) or exogenous damp-heat.

Damp-heat obstructs the network of blood vessels of the Bladder, impairing the flow of the qi and blood and leading to painful urination. In the author's experience, damp-heat in the lower jiao is the main cause of persistent pain and urinary difficulty (frequent, urgent, burning, scanty and painful urination) in IC.

If heat injures the network of blood vessels lining the Bladder it can result in reckless movement of blood causing the blood to extravasate and giving rise to urinary bleeding.

Deficiency of yin

Aetiology and pathology

- Prolonged damp-heat consumes Bladder yin.
- Prolonged illness damages Kidney yin.

Yin deficiency may be seen on cystoscopy as a reduction in the size of the bladder. As a result, the bladder walls react and show extreme sensitivity to the presence of small amounts of urine leading to urinary frequency that is not relieved after voiding.

Prolonged damp-heat and consequent consumption of yin can lead to the development of Hunner's ulcers.

Disturbance of the spirit (shen)

Emotional distress may be a consequence of pain, or the cause of pain. On the one hand, prolonged or excruciating pain may injure the spirit. On the other hand excessive anger, hysteria, depression, grief, fear or phobias can transform into fire (especially when their expression is repressed) and damage the function of the zangfu, especially the Heart and spirit. This may be further complicated by heat derived from excessive consumption of spicy food, smoking and alcohol. Heart fire can transmit into its interiorly-exteriorly paired Small Intestine, and from there to the Bladder (paired with taiyang Bladder channel according to six channel theory). As a result of this mutual relationship between pain and the spirit, emotional and physical pain in IC patients becomes one component and at times it is very difficult for the practitioner to separate and to differentiate, especially when the disease has become long term. I therefore believe that the treatment of IC patients must be multi-dimensional

Principles of treatment

Treatment combines selecting points to directly treat the

pain of IC, with treatment directed at underlying patterns of disharmony.

To relieve pain

- Hegu L.I.-4 combined with Kunlun BL-60.
- Ciliao BL-32 and/or Xialiao BL-34.

Additional points are selected from among:

- Changqiang DU-1 for perineal pain and pain in the lower back.
- Sanjiaoshu BL-22, Shenshu BL-23, Dachangshu BL-25, especially in cases with lumbar pain.
- Zhongfeng LIV-4 for pain of the urethra.
- Shuiquan KID-5 for pain and burning of urination.
- Jinmen BL-63, xi-cleft point of the Bladder channel, for very acute painful attacks.

To treat underlying patterns

- Sanyinjiao SP-6 and Zusanli ST-36 to tonify qi and blood and strengthen the Spleen.
- Yinlingquan SP-9 to resolve dampness, relieve dysuria and alleviate pain in the external genitals.
- Xuehai SP-10 to control reckless movement of hot blood and treat haematuria.
- Taichong LIV-3 to smooth the Liver qi and resolve stagnation.
- Ququan LIV-8 to clear heat and damp-heat from the Liver channel in the genital region and alleviate the pain of vulvodynia.
- Taixi KID-3 to tonify Kidney qi, Kidney yin and Kidney yang.
- Shenshu BL-23 to tonify Kidney qi, Kidney yin and Kidney yang.
- Jinggu BL-64, the yuan-source point of the Bladder channel, to tonify the Bladder.
- Zhongji REN-3 combined with Pangguangshu BL-28 to rectify the qi of the Bladder and lower abdomen, and alleviate pain.
- Baihui DU-20, Neiguan P-6 and Gongsun SP-4 to calm the mind and pacify the spirit.

Method

Local , proximal and distal points are combined, with about 10-15 needles used at each treatment session. Reinforcing and reducing techniques should be applied according to presentation. Even technique may be used in the commonly encountered mixture of deficiency and excess, although strong reducing technique may be used in cases with acute pain and severe heat or damp-heat.

The overall length of the treatment depends on a number of factors including the patient's constitution, the duration of the condition, other systems being affected (for example the Stomach and Spleen where there is IBS, the reproductive system where there is polycystic ovarian syndrome, endometriosis, thrush etc.), and the degree of emotional disturbance.

Observations

From my clinical experience, acupuncture is definitely effective in treating interstitial cystitis. In an informal study of eighteen female IC patients carried out at my clinic, there was an 81% improvement in physical symptoms (first and foremost pain, followed by urinary frequency), and a 90 % improvement in emotional wellbeing. It should be noted however that IC can be difficult to treat and may require prolonged treatment. This is especially the case when IC is complicated with other diseases such as polycystic ovarian syndrome, endometriosis, IBS, chronic fatigue etc.

While systemic treatment of the root of the disorder is the long-term aim, alleviating pain is usually the primary and initial objective.

Differentiation of patterns in IC patients may be complex due to these associated diseases, their often-prolonged use of anti-depressant and anti-inflammatory medication, and the intrusive diagnostic procedures many of them have undergone, as well as the baffling nature of IC itself. Patient response to acupuncture is often unpredictable, with some patients gaining significant improvement within six treatment sessions and others taking considerably longer.

While systemic treatment of the root of the disorder is the long-term aim, alleviating pain is usually the primary and initial objective. At the same time it is important to harmonise the shen to help resolve the anxiety and despair that IC patients usually suffer from.

Case examples

Case History 1

Female, aged 54, a mental health nurse, currently unable to work. Married, 2 children (aged 8 and 11)

Medical history

- Repeated bacterial cystitis since the age of 27, with two severe attacks in the last two years.
- E-coli treated with antibiotics.
- Infertility, treated with Clomid.
- Cystic ovaries; a dermoid cyst was removed from her left ovary.
- In March 2003, an attack of cystitis combined with thrush led to a cystoscopy that revealed trigonitis.
- A recent medical diagnosis confirmed urethral syndrome/interstitial cystitis.

Previous treatment

Dietary changes, probiotics and homoeopathy were not helpful. Urethral dilatation and hydrodistention were advised but were refused by patient. The patient was taking antidepressants. Through recommendation, the patient decided to receive acupuncture at Cookham Centre for Complementary Medicine.

TCM observation and diagnosis
This patient was tearful and depressed and complained of plumstone throat. She had a dark facial complexion and a low voice. She experienced pain during urination which worsened after urination. She had lower abdominal and back pain, vulvodynia and a white, hot vaginal discharge. Her urine flow was thin. The urine was dark in colour, and urinalysis showed abnormal PH, and a moderate amount of blood. Her symptoms worsened with her menstrual cycle.
Tongue: red, swollen and congested, toothmarks, central line, thick yellow coating.
Pulse: Deep and deficient in the kidney position, slippery in the spleen position, full and wiry in the liver position, full and rapid in the bladder position.
Palpation: Ququan LIV-8, Sanyinjiao SP-6, Yinlingquan SP-9, and Zhongji REN-3 were painful to touch. Jinmen BL-63 was dehydrated and sunken.

Pattern differentiation
TCM holds that injury to the zangfu may damage both qi and blood. As qi promotes circulation of blood, stagnation of qi may lead to blood stasis. Failure of qi and blood to circulate freely and blockage of the channels, will eventually lead to pain. In this complex case, underlying patterns included deficiency of Stomach and Spleen, Kidneys, and qi and blood. Stagnation of Liver qi caused obstruction of qi and blood. This lead to blood stasis and damp-heat in the lower jiao, whilst stagnant Liver fire rose to affect the Heart and disturb the shen.

Treatment principle
My general aim is always to treat the root cause of the disharmony by systemic treatment. However, the symptoms of pain, urgency and frequency are frequently so severe in IC patients that I primarily focus on relieving pain and calming the shen, otherwise I believe, and I have experienced, that the severity of these symptoms can hinder treatment of the root.

Treatment plan
Twice-weekly acupuncture for three weeks, followed by weekly treatment. After five sessions, the thrush had disappeared and the pain had changed to a chronic dull ache. After eight sessions, she experienced no pain for five days out of seven. Following twelve sessions of acupuncture, the patient's condition had improved hugely and she was symptom free apart from an occasional dull ache that was related to dehydration. Urinalysis was normal. She was now on a minimal dose of antidepressants. She resumed normal sexual relations with her husband after an eighteen-month period and returned to nursing after a long absence declaring herself "90% better".

Case History 2
Female, aged 59, homemaker

Medical history
- This patient has had a history of IC since 1996. Her diagnosis was made by means of cystoscopy following severe attacks of cystitis.
- History of high blood pressure with occasional palpitations. Her BP on first consultation was 160/90.
- IC related anxiety.
- Fibromyalgia.
- 1984 - removal of growth from the bladder.

Previous treatment and diagnostic procedures
- 11 cystoscopies between 1984 to 1991.
- 1997 cystodistention.
- 1997 five treatments by DMSO (dimethyl sulphoxide). Painful procedures and not very effective.
- 1998 oxybutinin for long period, not very effective.
- 1999 commenced amitriptyline and aspirin.

TCM observation and diagnosis
She suffered from urinary frequency and urgency, accompanied by pain that was relieved after urination. Daytime urinary frequency was every half hour, with almost unlimited frequency at night. She also suffered from vulvodynia. Her face was pale with a malar flush, she had a low voice, and she appeared exhausted. Her hair was scanty and brittle. She had heat in her palms and soles and her mouth was dry. Urinalysis showed a moderate amount of blood and abnormal PH; the urine appeared very acid.
Tongue: very red and dry with cracks, no coating.
Pulse: submerged, wiry, choppy. The bladder pulse was rapid, and the kidney pulse was deficient.

Pattern differentiation
Deficiency of Kidney yin was unable to control fire that agitated the Heart, causing palpitations. Deficiency of Kidney qi affected normal Bladder function. Blood stasis due to stagnation of qi and obstruction of qi and blood in the channels and collaterals. Deficiency of Stomach and Spleen.

Treatment principles
Alleviate pain. Replenish qi and blood, resolve blood stasis and invigorate Spleen, Kidney and Lung Qi, which are responsible for fluid transformation and transportation.

Treatment plan
Twice weekly for three weeks and thereafter weekly for six months.

Results
After eight acupuncture treatments, the urinary frequency improved to once every hour, and she only woke up three times at night. Her pain was reduced to a dull ache in the bladder during urination. After sixteen sessions, she was completely pain free with normal daytime urinary frequency and a maximum of two urinations during the night, sometimes sleeping right through.

At follow-up, three years after her visit, she remains symptom free and leads a normal life. She has slowly been weaned off the amitryptiline and aspirin and attends for acupuncture treatment every three months to improve and maintain her health.

Case History 3

Female, aged 58, homemaker, two sons and a daughter.

Medical history

- History of repeated attacks of cystitis for 23 years.
- After twenty years of investigations, the diagnosis of IC was made in January 2001 by cystoscopy which also confirmed the presence of Hunner's ulcers.
- First pregnancy by caesarian, second by difficult forceps delivery, third by caesarian (she was hospitalised during this pregnancy with a severe kidney infection).
- History of abdominal adhesions.

Previous treatment and diagnostic procedures

- Twenty cystoscopies.
- Ten bladder instillations.
- Four DMSO.
- Amitriptyline, antispasmodics and oxybutinin.
- She had a bladder stretch in January 2001 that was extremely traumatic and painful and lead to heavy bleeding from the bladder.
- Two angina attacks needing hospitalisation.
- Severe IBS, four colonoscopies and endoscopies.
- History of iron deficiency anaemia treated with ferrous sulphate.
- Severe injury to the lumbar spine at age 20 leaving her with left sided sciatica.
- Severe kidney infection twenty years ago during her last pregnancy.

When I first I met this woman, she was waiting to have her bladder removed the following week. Following a discussion on the use of acupuncture for the treatment of IC, she decided to try it as a last resort before going through this major surgery with the possible consequence of phantom pain.

TCM observation and diagnosis

Urinary frequency and urgency; every ten minutes or less. Use of a bedpan at night. The pain was sharp and stabbing as the bladder filled with urine and continued in urination, but was somewhat relieved after urination. Vulvodynia. Pale and very sallow complexion. She appeared very low in spirit and of a weak constitution. She reported, "I am very depressed". She was in constant pain. She had a low cough, without phlegm, and a low voice. Her symptoms were complicated by taking care of her mentally handicapped daughter at home (aged twenty with the mental state of a five-year old). Urinalysis showed large amounts of blood present in the urine, PH abnormal/ acid.

On examination I found that her abdomen was sore to touch, as were the acupuncture points Yinlingquan SP-9, Ququan LIV-8, Zhongji REN-3, Guanyuan REN-4, Zhongwan REN-12, Shenshu BL-23, Sanjiaoshu BL-22 and Weishu BL-21. Jinmen BL-63 appeared sunken and dehydrated.
Tongue: small and listless, thin and pale, purple on the tip and the edges, no coating.
Pulse: deep, weak. The Bladder and Kidney pulses were deficient, and the Heart pulse knotty.

Pattern differentiation

Deficiency of qi and blood due to weakness of the Stomach and Spleen. Liver blood deficiency. Deficiency of Kidney qi affecting Bladder qi. Blood stasis due to stagnation and obstruction of qi and blood. Depressed Lung qi.

Treatment principle

Tonify Stomach and Spleen to replenish qi in order to ensure replenishment of blood. Calm the shen and alleviate her feelings of sadness. Tonify Kidney qi in order to establish normal function of the Bladder. Invigorate the movement of blood and fluid in the Bladder by warming the Kidney. Resolve damp-heat from the Bladder to relieve painful urinary dysfunction.

Treatment plan

Twice-weekly acupuncture for four weeks, followed by weekly treatment for eight months.

Results

Progress was extremely slow, with such disharmony among the zangfu and the shen. After twelve sessions, she started to show some improvements in pain and frequency. As her mental state improved, she was better able to cope with her symptoms. After five months of weekly treatment, her urinalysis appeared normal and the severe pain was relieved and had changed character to become a dull ache in the lower back and lower abdomen. The urinary urgency and frequency also improved greatly. In consultation with her GP, she was taken off antidepressants, analgesics and aspirin. During the course of the first year of treatment, she suffered a couple of attacks of bacterial cystitis that were treated with acupuncture and antibiotics. Eighteen months into treatment, her urinary frequency had normalised, although she still had some aching in a full bladder. Emotionally, she improved hugely and she appeared very happy with her progress. Twenty-six months after her first visit to the acupuncture clinic, she underwent colonoscopy, endoscopy and cystoscopy on the advice of the surgeons. It was with great pleasure that the patient was confirmed to have recovered from her IC and that no Hunner's ulcers were seen in the bladder. The colonoscopy and endoscopy were normal. The patient was congratulated and advised to continue with acupuncture and discharged from the urology clinic.

Notes

1 *The Journal of Urology*, Vol. 161(2) February 1999 pp 549-552.

2 *The Journal of Urology* 2002 Jul;168(1):139-43).

3 A survey carried out by the UK's Interstitial Cystitis Support Group, responded to by 736 members, it was found that the age at first symptoms ranged from four to eighty-two years, and that the duration of symptoms before diagnosis ranged from 1 month to 60 years. A majority had undergone pelvic/abdominal surgery, mostly prior to the onset of symptoms. Urinary frequency was the most common main symptom, followed by nocturia, urgency and pain. The most common secondary medical condition was back pain, followed by arthritis, IBS, bacterial cystitis, thrush and sinusitis. The most common accompanying 'general problem' was fatigue, followed by depression, insomnia, difficulty in undertaking everyday tasks, and impaired concentration (21% had had to give up work). Nearly 80% said their symptoms caused difficulty in travelling, whilst over 50% reported difficulty in just leaving the house. Over 50% reported that IC had affected their sex life. The most common factor aggravating pain was stress (nearly 60%), followed by travel, anxiety and sexual intercourse.

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