Pain, Sex and the Brain

W36, 16 October 2012 14:00 - 17:00

Start	End	Topic	Speakers
14:00	14:05	Introduction	• Ragi Doggweiler
14:05	14:40	Sexuality and Pain	• Kristene Whitmore
14:40	15:10	Pain and the Brain	• Ragi Doggweiler
15:10	15:30	Japanese Approach	• Yukio Homma
15:30	16:00	Break	None
16:00	16:20	Chinese Approach	• Yong Yang
16:20	16:35	Western Approach	• Ragi Doggweiler
16:35	16:45	Patients Perception	• Jane Meijlink
16:45	17:00	Questions	All

Aims of course/workshop

Eastern and Western practical approaches to treat IC/BPS/PBS/CPPS. Treatment options based on not only medical but also on self-help and complementary therapy, with the emphasis on an individualized approach. Discuss effects of pain on sexuality including desire, arousal, orgasm, satisfaction and partner aspects. Investigate the role of the CNS on bladder, bowel and muscle function including neuroplasticity. Emphasis will be put on the multidisciplinary approach including mind-body techniques and the patients perspective

Educational Objectives

A multidisciplinary international panel with a strong expertise in the diagnosis and management of IC/BPS/ chronic pelvic-perineal and sexual pain syndromes in both clinical and research settings. This will be the first time that a practical global approach to this syndrome will be presented. We are offering different tools on how to tailor efficient treatments for our patients. Medicine is also an art and not only science.

Sexuality and Pain

Kristene E Whitmore,MD
Medical Director
The Pelvic & Sexual Health Institute

Professor OBGYN / Urology
Drexel University College of Medicine
Philadelphia, Pennsylvania

Female sexual response: Basson Model

- Multiethnic midlife women (Hispanic, white, AA, Chinese, Japanese in 6 US cities) = Study of Women's Health across the Nation = SWAN, 2003
- Reported many motivations for engaging in sexual play with partner. Primary = desire for emotional closeness
- 40% = never/rarely experience physical desire at initiation or between experiences
- 87% = satisfied with their sexual relationships

Basson, R, Sexual Dysfunction in Medicine, 2001,vol2, no3.,pp.72-77. Basson, R, Sexual Desire and Arousal Disorders, NEJM,2006,vol354,pp1497-1505.

Female sexual function

- Female sexual function POSITIVELY affected by:
- *stable past and current mental health
- *positive emotional well being and self image
- *rewarding past sexual experiences
- *positive feelings for a partner
- *positive expectations for the relationship

Basson, R. NEJM, 2006;354:1497-1506; Goldstein a et al, Female Sexual Function and Dysfunction, 2006. Leiblum,SR. J Gend Spec. Med. 1999;

Female Sexual Function

Estrogens: r/t comfortable sexual functioning

*40% of women with symptomatic vaginal atrophy secondary to low E levels confirm "adverse effects" on sexual function

*low E levels associated with reduced measures of vaginal vasocongestion in women in a *nonstimulated state*

Glaser,R.Institute of Behavioral Medicine. Research, Ohio State Univ. 2004, Laumann, EO, Paik, A, Rosen, RC. JAMA, 1999,28:6,537-544. . Basson, R. Sexual desire and Arousal Disorders in Women. NEJM,2006,vol 354,pp1497-1505.

Female Sexual Function

- Androgens: peak production mid 20's --- by age 60, it is halved

*Large scale study of SPMW with FSD / low FAI
*Notable decrease in desire, mood, well being

*PreMW HSDD, lowest quartile of androgen lab values
*Notable decrease in desire, energy

Laumann, EO, Paik, A, Rosen, RC. JAMA, 1999,28:6,537-544. Muniarez,R, Goldstein,I et al. 2001 Female Sexual Function Forum, Boston University. Davis, SR et al, Menopause, in press 2006.

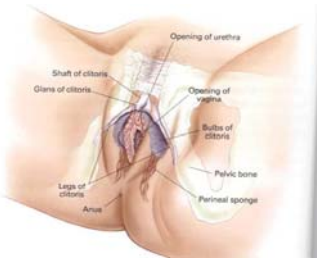
Female Sexual Function: OCP/HRT use

- Estrogen Supplementation=SHBG high, FAI low
- Increased incidence of FSD among young OCP users , even after discontinuation
  - (37/79 dc'd d/t sexual side effects)

Altman A et al, Patient Care, Spring 2002,4-12 ; Panzer et al, J Sex Med, 2006; 3:104-13..Sanders et al, Contraception,2001;64:51-8.

Female Sexual Function:

- 90% of women able to experience orgasm with clitoral, urethral, anterior fornix, labial &/or "other" erotic stimulation
- clitoral orgasm, most common, mediated by clitoral branch of the pudendal nerve



Hyde J. Biological Substrates of Human Sexuality,2005, APA. Goldstein et al. Women's Sexual Function and Dysfunction, 2006, Taylor-Francis.

Female Sexual Dysfunction (FSD)

- 1999 Laumann: FSD 43% of US women (*1749 women, 18-59)

*single women
*poor health
*low education level
*minority status

Laumann, EO, Paik, A, Rosen, [illegible] JAMA, 1999,28:6,537-544/ Clayton AH 2007 JSM Suppl.4.

Biopsychosexual issues

- Female sexual function adversely affected by MSD:
  - ½ men over 50 have ED
  - 1/3 men PE
- Other major issues include:

*Financial concerns

*Fatigue / workalholism / "DINS"

Altman A et al, Patient Care, Spring [illegible] 4-12. Goldstein a et al, Female Sexual Functiion and Dysfunction, 2006.

Female Sexual Function : Aging

- Clitoral perfusion / engorgement /arousal diminished = decreased lubrication
  (particularly with hypercholestrolemia, ASD)
- Decline neurophysiologic response: *decreased touch perception, vibratory sensation and slowed reaction time = lengthened O latency time
- Decreased ms. tone= PFM /Uterine contractions diminish = decreased O amplitude

Altman A et al, Patient Care, [illegible] 2002,4-12; Goldstein et al, Female Sexual Function and Dysfunction, 2006..

FSD: Desire disorders

Hypoactive sexual desire disorder (HSDD):

The persistent or recurrent deficiency or absence of sexual , fantasies and /or receptivity to sexual activity, that causes personal distress.

FSD: Arousal disorders

Female sexual arousal disorder (FSAD):

The inability to attain or maintain sufficient sexual excitement, expressed as a lack of subjective excitement or somatic response such as lubrication, which causes personal distress.

FSD: Orgasm disorder

Female orgasm disorder (FOD):

Persistent or recurrent difficulty, delay in or absence of attaining orgasm following sufficient sexual stimulation and arousal, which causes personal distress.

Basson,R et al, J of Urology, [illegible] 163:888-893. Farrington, A.Health & sexuality,2005;10:2-13.

FSD: Pain disorders

Vaginismus:

Recurrent or persistent involuntary spasm of the musculature of the outer third of the vagina that interferes with vaginal penetration, which causes personal distress.

Noncoital sexual pain disorder:

pain that occurs with sexual stimulation other than intercourse, which causes personal distress.

Basson,R et al, J of Urology,2000, [illegible] 893, Farrington, A.Health & sexuality,2005;10:2-13

Is FSD a mirror image of MSD?

Oberg et al.JSM. 2005 2:160-180
N= 926 Swedish women; 18-65yo

- ED =30x greater risk of HSDD
- DE =25.9x greater risk FSAD
- PE=4x greater risk FOD
- M-HSD=greater risk FOD

- Blumel JE et al. Menopause 2004;1;78-81.
- N=534 women ceased sex w/ male partner
- #1 reason in women <age 45= ED

Most common complaints in urology: Dyspareunia and lack of arousal

- Women may be unable to separate the two disorders
- Dyspareunia leads to fear of more pain and altered arousal
- Poor arousal can lead to poor lubrication can lead to dyspareunia

Binnik, HM, et al. Arch Sex. Beh, 2005; 34:11-21

Dyspareunia

Dyspareunia affects ALL other aspects of female sexual response (eg: desire, arousal, orgasm, satisfaction)

Dyspareunia : 2 types

- Superficial (entry) : often due to inflammation at the introitus associated with: UTI, urethritis, vaginitis, provoked vestibulodynia
- Deep (thrusting) often occurs in women with CPP related to bladder, uterine, ovarian, bowel or pelvic floor muscle pathology

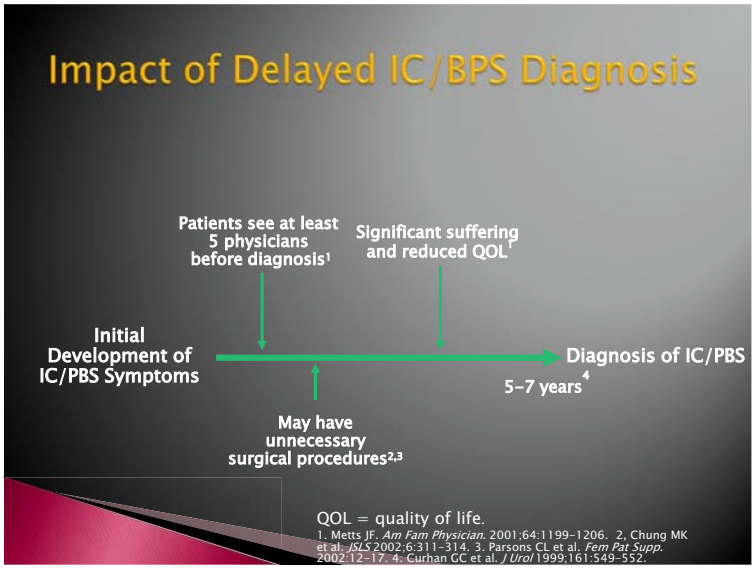
Hypersensitivity disorders (IC/BPS; HT-PFD, PVD etc) can cause or complicate FSD symptoms in urogynecology

Meston,CM etal.Ann Rev Clin Psychol, 2007;3:233-56

Dyspareunia in Women

- Identify and treat all pain generators of CPP
  IC/BPS, VVS, HTPFD, Constipation, IBS, Endometriosis
- Identify and treat co-existing sexual dysfunctions:
  Hypoactive Sexual Desire Disorder
  Female Arousal Disorder
  Female Orgasm Disorder
  Partner concerns
  Counseling
- More than 50% of women with Sexual pain have HSDD/ avoidance secondary to fear of pain

Whitmore K.E. et al JSM 2007 (4): 720-727



High Tone Pelvic Floor Muscle Dysfunction

- Occurs in up to 87% of women with IC/BPS
- State of overactive muscular contraction of pelvic floor muscles resulting in decreased urine flow rates, obstructed defecation, dyspareunia
- Symptoms include pain, anxiety, and distress
- Can result in pudenal nerve entrapment
  - Burning sensation: perineal, anorectal
  - Delayed pudendal nerve motor latency, abnormal MRI

Rogalski MJ, Kellogg-Spadt S, Hoffmann AR, Fariello JY, Whitmore KE. Retrospective chart review of vaginal diazepam suppository use in high-tone pelvic floor dysfunction. *Int Urogynecol J Pelvic Floor Dysfunct.* Jul 2010;21(7):895-899.

CPP: Psychosocial factors

- **Somatization/catastophizing (helplessness, hopelessness)**
  - Symptoms not accounted for by a medical condition
  - Avoidance in coping strategies
- R/O abuse – sexual, physical, emotional
- Associated depression and anxiety syndromes mandate treatment

Fall,M,Baranowski,AP,Fowler,CJ,etal. EAU guidelines on chronic pelvic pain. Eur Urol.,2004;46:681-689.
Clemens, JQ, Brown, SO, Calhoun, EA. Mental health diagnoses in patients with IC/BPS & CP/CPPS: a case control study JUROL, 2008; 180: 1378-1382

IC/BPS

- Pain, pressure, or discomfort perceived to be related to the urinary bladder and associated with LUTS
  - Greater than 6 weeks duration in the absence of infection or other identifiable conditions

Hanno,PM. Et al: Diagnosis and treatment of interstitial cystitis/bladder pain syndrome. American Urological Association Guideline 2011

Abrams P, et al. Neurourol. Urodyn. 21:167-178, 2002.

IC/BPS Comorbidities

- **35% of 987 women with IC/BPS had IBS**
  - Similar prevalence to men with IC/BPS
  - Coexistence of psychological disorders
  - History of sexual and physical abuse
  - Similar healthcare utilization

Nickel,JC,Berger,R,Pontari,M.. Rev Urol,2006;8(1):28-35.
Williams, R, Hartmann, K et al:. American Journal of Obstetrics and Gynecology 2005;192:761-767

Evaluation of CPP and UI: Overview

Evaluation / Diagnosis

1. Medical history
2. History of urinary symptoms
   - Onset
   - Frequency
   - Amount of urine loss
3. Physical examination
   - General
   - Abdominal
   - Rectal
   - Genital
   - Neurologic
4. Diagnostic tests
   - Estimation of PVR
5. Urinalysis to determine infection/UTI
6. Further evaluations
   - Urodynamic tests

Mikhail, 2001 (www.cpha.com/about/educ/ce/0115.pdf).

Sexual assessment / history

*Ask if sexual concern is present in all situations, for how long,with self and partner? etc.

*If more than one sexual concern ie: desire, arousal & sexual pain…Which is most troubling?

*Priority set.

Basson,R. NEJM 2006;355:1497-1506

FSD:Diagnostic Inventories

- **The Female Sexual Function Index (FSFI)**
  *19 items, internal consistency, test-retest reliability
  *discriminates FSD in 5 domains:
  desire, arousal, orgasm, satisfaction and pain

The Sexual Function Questionnaire (SFQ)
*31 items, reliability and validity established
*discriminates FSD in 7 domains, including partner satisfaction

Rosen, R et al. J Sex and Marital Therapy 2000, 26:191-208
Rosen,R Fertil Steril 2002;77 Suppl 5 89-95.

Voiding Diary

A 3-day diary is as effective as a 7-day diary with higher likelihood of patient compliance

Time interval	Urinated in toilet	Had a small incontinence episode	Reason for incontinence episode	Type/amount of liquid intake
6–8 am				
8–10 am				
10 am–noon				
Noon–2 pm				
2–4 pm				
4–6 pm				
6–8 pm				
8–10 pm				
10 pm–midnight				
Overnight				
Number of pads used today		Number of episodes		
Comments				

Diary can be used as a pretherapy diagnostic tool as well as a measure of posttherapy outcomes

Fantl JA, et al. Agency for Health Care Policy and Research, Publication No. 96-0682. 1996.
Dmochowski RR et al. *BJU Int.* 2005;96:1049-1054.

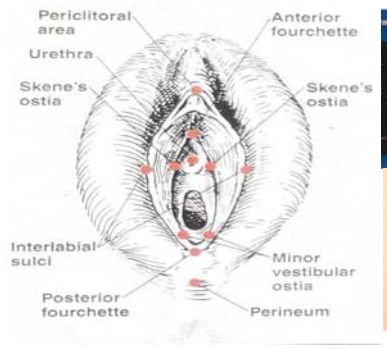
Physical Examination Inner/Outer Pelvis

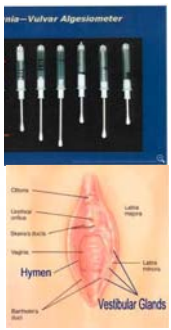
Inner Pelvis
- Measure strength
  - Digital measurement, POPQ/Baden-Walker
  - Perineometry, EMG

Outer Pelvis
- Symmetry, tenderness, spasm, mobility, strength
- Standing/sitting
  - PSIS, SIJ provocation, paraspinals
- Supine
  - ASIS, pubic tubercles, iliopsoas, rectus

POPQ = pelvic organ prolapse quantification; PSIS = posterior superior iliac spine; SIJ = sacroiliac joint; ASIS = anterior superior iliac spine.

Cotton swab (Q-Tip) touch test





Masheb R et al. Pain Med 2004;5:349-358.

Update on Physical Exam Testing Procedures

"Quantitative sensory testing"- repeatable valid descriptor of sensory state used to assess sensory function for other neuropathies

Age-corrected normograms for thresholds of vibratory and thermal sensations for the clitoris and vagina.

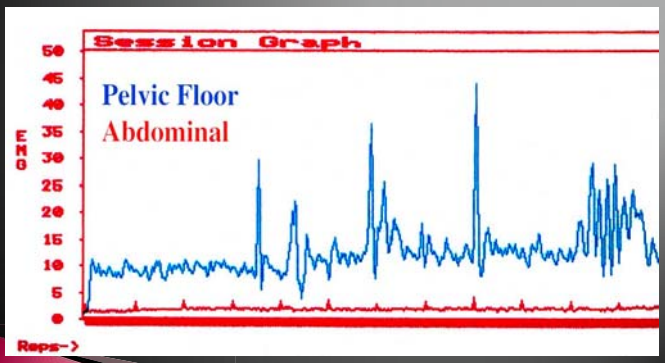
Vardi Y et al. Urology 2008 20;56(6):103

Pelvic Floor Muscle Strength Oxford Scale

- Pelvic floor muscle contraction
  - 0: nil
  - 1: flicker of muscle contraction
  - 2: weak contraction
  - 3: medium – slight lift of examiner's finger, no resistance
  - 4: strong – elevation of examiner's finger against light resistance
  - 5: very strong – elevation of examiner's finger against strong resistance

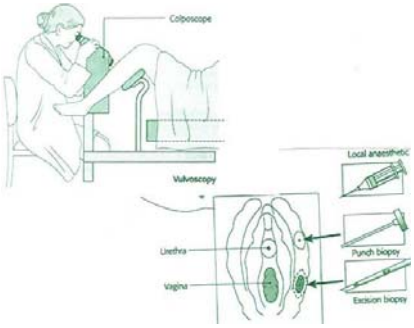
Isherwood PJ, Rane A. *Br J Obstet Gynaecol.* 2000;107:1007-1011.

Muscle Tone: hypertonic, spastic



Glomerulations as Seen on Cystoscopy

FSD:Diagnostic Testing



Rosen, R et al. J Sex and Marital Therapy. 2000. 26,191-208
Rosen R Fertil Steril 2002;77 Suppl 5 89-93.

Management of CPP

Causes must be determined for effective treatment to be implemented!

- Step 1
  - Treat early
- Step 2
  - Treat main pain generator
- Step 3
  - multimodal therapy
    - For main pain generator
    - For associated pain generators and other symptoms
- Step 4
  - Follow up closely
    - Periodic completion of validated questionnaires (eg, PUF) may be most effective follow-up strategy
- Step 5
  - Prevent progression and recurrence

Pain Generators

- Bladder – IC/BPS
- Urethra – usually related to IC/BPS
- Pelvic floor – High tone pelvic floor dysfunction/tension myalgia
- Vagina/uterus/ovaries – chronic PID
- Peritoneum – endometriosis
- Vulva – Vestibulodynia
- Bowel – IBS

Note: These CPP syndromes are all interrelated!

Physical Therapy Principles

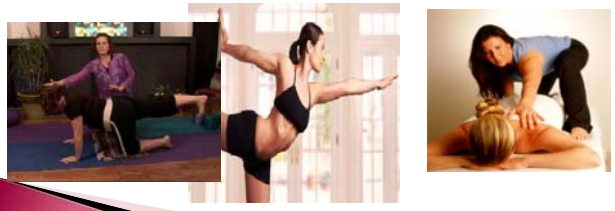
- PFM:Phasic vs tonic changes with pain and postural dysfunction
  - Postural muscles respond to pain and dysfunction by tightening
  - Phasic muscles respond to dysfunction by weakening
- Soft tissue changes
  - Loss of sarcomeres
  - Binding of fascia
  - Restriction of nutrition and blood supply
  - Eventual abnormal movement and firing pattern
- GOAL:Relax then retrain

Akeson WH, Woo SL-Y, [illegible] connective tissue response to immobilization: biochemical changes in periarticular connective tissue of the rabbit knee. Clin Orthop. 1973; 93: 356-362.
Tabary JC, Tabary C, [illegible] physiological and structural changes in the cat's soleus muscle due to immobilization at different lengths by plaster casts. Am J Physiol. 1972; 224: 231-244.

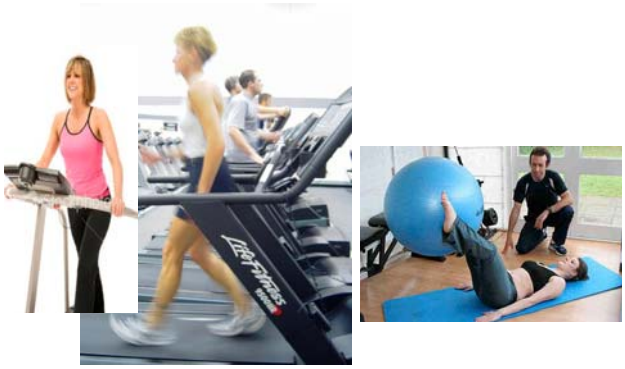
Stretching & Flexibility

- Iliopsoas
- Piriformis
- ITB
- Adductors
- Pectineus

- Floor program
- Assisted stretching
- Manual soft tissue release



Therapeutic Exercise



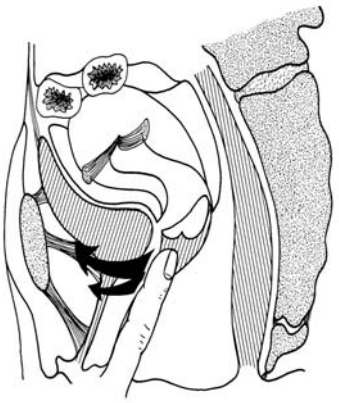
Strengthening postural stabilizers

- Stabilizers
  - Glut
  - Paravertebrals
  - Lower trap
  - Rhomboids
  - Quadratous
  - Hamstrings
- Abdominals
  - Trans abdominals
  - Obliques
  - Rectus Abdominals
  - Lower Abdominals

- Floor exercises
- Assisted stretching
- Theraband
- Gym equipment / treadmill

Treatment: PFD

- Internal pelvic floor muscle TrP release via direct massage
- Fibrous crosslinks are a natural response to soft tissue strain or injury.
- Manual therapy restores function by interrupting crosslinks and allowing fascia/ muscle to move freely.



Herman, H. Physical therapy for female sexual dysfunction. In Women's Sexual Function and Dysfunction (eds) I Goldstein et al, 2005, Iondon, Taylor Francis

PFM and FSD: can PT help?

- Bergeron, S. et al. Sex Marital Ther 2002;28 :183-92.
- N =35 sexual pain
- Length of RX.= av. 7 therapy sessions
- Complete or great improvement = 51.4%
- Moderate-some improvement = 48.6%
- F/U: 2- 44 mos later: sexual desire, coital frequency and arousability maintained

PFM and FSD: can PT help?

Goetsch,MF 2007 J Repro Med 52(7)597-603.

- N =111 s/p vestibulectomy
- 85% neg touch test, but 64% contd dyspareunia
- 50% of those with continued dyspareunia demonstrated marked hypertonus PFM
- CONCLUSION: superficial surgery + corrrection of PF myalgia with PT needed to achieve comfort

Efficacy of Physical Therapy Rx in Sexual pain

- Multicenter trial; 48 F/M CPPS/HTPFD subjects
- General therapeutic massage –vs- Myofascial PT
- PRIMARY END POINT:Global Assessment Response "marked/moderate improvement"
- 57% MPT vs. 21% GTM
- Improvement sexual function and in pain
- Most common AE : Pain 52% MPT vs. 21% GTM

Fitzgerald,MP et al.2009;J Urol. (8) pp570-580

PFME: Home programs

- HTPFD
- Self massage
- Squat- gentle bulge
- Hold for 3-5 secs

LTPFD:

KEGELS: Endurance – up to 10 secs
Quick Flicks-1 sec & 5sec rest
relaxation after contractions

Medical Treatment: HTPFD

PFM TrP Injx

-Doumouchtsis et al 2010

N=53 perineal pain/ dyspareunia
10ml bupivicaine/100mg hydrocortisone/1500 u hyaluronidase 2 injections 1 month apart

*27 /53 painfree
*16/53 mild pain but able to resume intercourse within 8 weeks

Kang et al Dis Colon Rectum 2000,1288-91 ;Langford CF et al. Neurourodyn 2007,59-65; Doumouchtsis et al 2010 epub.

Dilators

- May add training with dilator insertion
- Discuss sexual positioning (limit stress on affected muscle groups)
- GOAL: stabilization of spasm & return of sexual function

Herman, H. Physical therapy for female sexual dysfunction. In Women's Sexual Function and Dysfunction (eds) I Goldstein et al, 2005, Iondon, Taylor Francis

Vaginal Dilator Therapy and Dyspareunia

- 18 ♀ pts's w/ superficial dyspareunia
- Patients used graduated glass dilators with light lubrication for 10-15 minutes twice a day.
- Treatment was successful in 77.8% of subjects, with 72% have complete symptomatic relief
- Vaginal dilation is an effective treatment for superficial dyspareunia

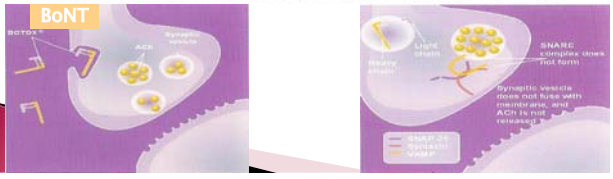
Idama TO et al. J Obstet Gynaecol. 2000 May;20(3):303-5.

Botulinum Neurotoxin Serotypes: Therapeutic Profiles are Different

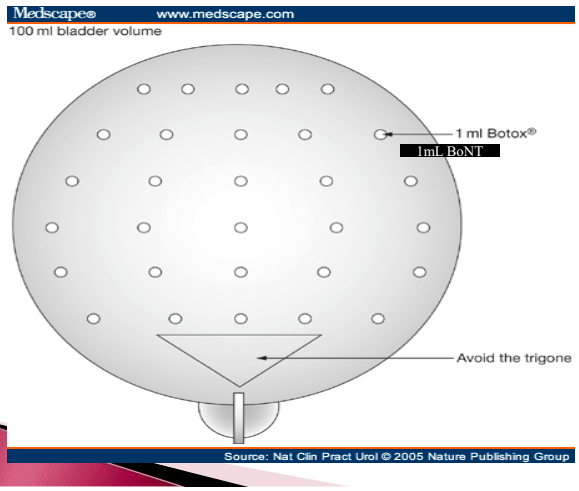
Biochemical differences Among Clinical Preparations	May yield differences in therapeutic profile
Acceptor affinities	Dose
Complex size	Efficacy
Formulation	Safety
Intracellular target	Duration

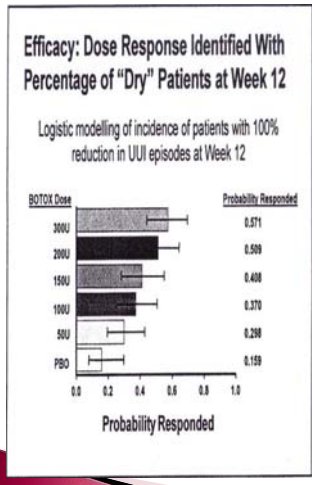
"Units of biological activity of (Btx-products) cannot be compared to nor converted into Units of any other botulinum toxin or any toxin assessed with any other specific assay method." Reltz, A, et al. Eur Urol, 2004: 45; 510-515

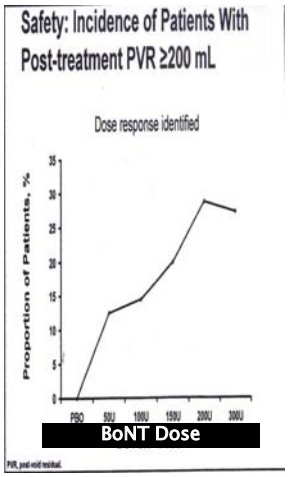
Release of Ach from Motor Nerve Terminal



Where to Inject







Schurch B, et al. J Urol. 2005; 174: 196-200

Botox and IC

- 67 patients with refractory IC/PBS, mean 42.5 yrs
- BTX group: 44 pts. 200 U (15 pts) or 100 U (29 pts) suburothelial, then HD 2 wks later
- Control group: HD only
- ICSI ↓ in all groups
- 3 mo: VAS ↓, Functional and cystometric bladder capacity ↑, significant only in BTX group
- 6 mo: 71 % of BTX group moderate to marked improvement on GRA
- 12 and 24 mo: BTX 55% and 30% success vs Controls 26% and 17% (p=0.002)
- Retention: 200u-47%, 100u-10%

Kuo HC, Chancellor MB. BJU Int. 2009 Sep;104(5):657-61

Botox and IC

- 26 pts with refractory IC/BPS
- 100 U BTX injected in 10 **trigonal** sites. Retreatment allowed 3 mo after
- All pts had subjective improvement at 1 and 3 mo
- Significant improvement with pain, frequency, nocturia, ICSI/ICPI, QoL
- MCC ↑ x 2
- Effective treatment at 9 mo in >50% pts
- Transient significant ↓ nerve growth factor and brain-derived neurotrophic factor
- No voiding dysfunction or retention.

Pinto et al., Eur Urol. 2010 Sep;58(3):366-8

Botox and Vulvodynia

- 7 women with intractable genital pain
- 20-40 U BTX A at vestibule, levator ani, or the perineal body
- Repeat injections every 2 weeks if symptoms perstisted.
- In all patients, pain disappeared
- 5 patients- 2 Injections; 2 patients- 1 Injection.
- VAS improved from 8.3 to 1.4
- Mean follow-up 11.6 months, no side effects

Yoon, H et al. Int. J. Impotence Res. 2007; 19: 84-87

Botox and High Tone Pelvic Floor Dysfunction

- Double blinded RCT 7, 6mos.
- 60 women with CPP > 2y and PF spasm
- 30 received 80 U into PFM (BTX group), 30 Saline.
- BTX group: Dyspareunia VAS 66→12 (p<0.001), nonmenstrual pelvic pain VAS 51→22 (P=0.009)
- Placebo: only dyspareunia ↓ significantly (VAS 64 vs 27)
- Vag manometry ↓ significantly in both groups 49-32cm H20, 44-39cm H20
- ***However no difference in pain scores between 2 groups***

•Abbott et al. OB & Gynecol. 2006; 180: 915-923

Botox and High Tone Pelvic Floor Dysfunction

- 67 women with sexual dysfunction (variable presentations)
- 20 U every 2-3 mo into levator ani
- EMG guided needle placement
- Mean of 2.4 injections/subject
- Symptom reduction 46-76%
- "Cure" rate 20-46%

•Bertosali et al. J. It. OB & GYN 2006; 28: 264-268

Sacral Neuromodulation

SNM for the treatment of female lower urinary tract, pelvic floor, and bowel disorders.

• FDA approved for iOAB, UUI, and chronic nonobstructive urinary retention.
• SNM reduces LUT symptoms by acting on central nervous system
• Has potential to treat bladder, urethral sphincter, anal sphincter and pelvic muscles SIMULTANEOUSLY.
• Can also be used in treatment of chronic constipation, IC/BPS, sexual dysfunction, and neurogenic disorders
•SNS now approved by the FDA for Fecal Incontinence

Whebe, SA, et al. Curr Opin Ob/Gyn, 2010;22:414-419

SNS FOR THE SYMPTOMATIC TREATMENT OF IC

- Retrospective, case-controlled review
- 34 ♀'s w/ IC/BPS. Median age 41 years
- Stage 1 & 2 InterStim placements
- Mean Pre/Post op # voids 17.8/8.1
- Mean Pre/Post op PUF scores- 21.61/9.22
- Mean Pre/Post op VASP 6.5/2.4
- Minimum 6 yr f/u showed adequate improvement of IC/BPS symptom

Marinkovi, S, et al. Int Urogyn J 2011; 22:407-412

SNS and Female Sexual Dysfunction

Pauls, RN, et al. Int Urogyn J. 2007;10:391-395

- RC7, 11 sexually active ♀'s, FSF1 pre/post op
- F/U's 7 mos, 7/11 active post op → 3 +impact, ↑'d sexual frequency, ↑'d FSF1 (20.7-30.22)

Lombardi, G, et al. JSM 2008;5(6):1411-1417

- 31 ♀'s, sex hormones, FSF1, FSDS
- ≥30% of NGB & idiopathic OAB maintained improvement of quest 2 yrs. after implant.

Vaginal Mesh Complications

- 54 women evaluated for mesh complications
- Median time frame- 27.2 months post op
- 66% had pain
- 55% had erosion of varying degrees
- 48% had vaginal discharge
- Complications after mesh can affect quality of life, and often require new surgical intervention.

Skala, CE., et al Eur J Obstet Gynecol Reprod Biol. 2011 Aug 6

FDA Public Health Notification: Serious Complications Associated with Transvaginal Placement of Surgical Mesh in Repair of Pelvic Organ Prolapse and Stress Urinary Incontinence

Issued: October 20, 2008

New Warning Issued 7/13/2011

Medical Treatment of HSDD and FSAD

Testosterone Post-Menopausal

- Randomized double blind placebo controlled 52 week trial
- N=814 HSDD women
- Patch (150, 300 ug) vs. placebo
- Efficacy: 24 week endpoint, satisfying sexual events (SSEs)
- 300 ug: SSE > placebo (2.1 vs 0.7, P<0.001)
- Both doses associated with increased desire and decreased distress

Davis, et al. New Engl J Med 2008;359:2005-17

Options for estradiol therapy

- Synthetic
  - Oral: Premarin, Prempro, Premphase, Fem HRT, Estratest, Activella.
  - Vaginal Cream: Premarin Vaginal Cream
- Biologically Identical
  - Gel: Estrogel, Divigel, Elestrin
  - Patch: Climara, Vivelle, Estraderm
  - Ring: Femring
  - Oral: Estrace
  - Cream: Estrasorb

Vasomotor symptom reduction with various therapies

Therapy	% Reduction
Hormone therapy	≥90%
Venlafaxine	60%-75%
Gabapentin	50%-60%
Selective serotonin reuptake inhibitors	50%
Vitamin E/Soy	25%
Placebo	20%-30%

Dopamine Agonists

- Bupropion (75mg/day)
- Cabergoline (0.25 mg M/Th)
- Pramipexole (0.125mg TID)
- Ropinirole (0.25mg TID)
- Amantadine (100mg BID)

Oxytocin (Pitocin)

Oxytocin IM 10 u- I hour before sexual activity
Oxytocin lozenge 250 U- up to 4 at one time 1 hour before sexual activity

Norepinephrine Agonist

Yohimbine HCL 5.4 mg- Up to 4 at one time 1 hour before sexual activity

Opioid Antagonists

Naltrexone (Revia) 50 mg/ day

Basic Office-Based Counseling

- Identifying the problem = first step in treatment
- Then consider:
  - Discussing behavioral and lifestyle interventions
  - Directing her to patient education resources
  - Scheduling her for a follow-up visit to get more information and see if she needs to be referred to a mental health professional
  - Referring her to a mental health professional

When to Refer to a Specialist

- Sexual problems have occurred as a result of trauma
- Sexual problems have been chronic
  - ("I've always had this problem")
- Underlying medical or psychiatric problem is out of your scope of practice
- You are uncomfortable working with the client or the situation

Individual or Conjoint Sessions?

Patients might want their partners to become involved in the process for several reasons, including:

- To prevent one partner from being identified as the "patient"
- To address relationship factors that may be contributing to the sexual problem
- To address the difficulties that the sexual problem(s) cause within the relationship

Behavioral Techniques

- Sex Therapy solution focused counseling. Assists a client /couple deal with issues so that sexual issues have less impact on life and intimate relationships.
- Sensate focus: a series of sensual touching exercises to increase couples awareness of sensation and shift focus away from goal-oriented intercourse/orgasm
- Bilbliotherapy: assigned reading of instructional and/or arousing literature to increase sexual competency
- CBT: monitor thoughts, assumptions, beliefs and behaviors r/t negative emotions & replace them with realistic and useful ones
- Systematic desensitization: behavior modification used to treat fears/phobias with relaxation &reduction of anxiety hierarchy.
- EMDR: client attends to the disturbing thought while simultaneously directing eyes to follow a moving object from side to side.

Female Orgasmic Disorder

- Cognitive Behavior Therapy (CBT) has been empirically shown to be effective
- Aim is to change attitudes and sexually relevant thoughts, decrease anxiety and increase orgasmic ability and satisfaction
- CBT techniques
  - Directed Masturbation
  - Sensate Focus
  - Systematic Desensitization
  - Sex Ed, communication skills training and Kegels too

Anderson 1983; Morokoff & LoPiccolo, 1986; Heiman 2000, [illegible] 2002; Meston & Levin, 2005.

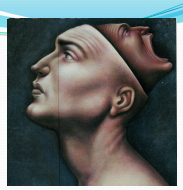
Dyspareunia

- Binik: "Is the pain sexual or the sex painful?"
- Treatment:
- Multimodal and focused on the specific pain problem(PVD vs. HTPFD vs BPS etc)
  - CBT; assistance with stress management, cognitive restructuring to alter expectation of pain, couples therapy to focus on alternative pleasuring strategies.

" It takes 2 to Tango"

THANK YOU FOR YOUR KIND ATTENTION !

Definition of Pain by IASP and APS



Pain is an unpleasant sensory and emotional experience associated with actual and potential tissue damage, or described in terms of such damage

Pain

Pain is a more terrible lord of mankind than even death itself.

Albert Schweitzer, 1931

Questions since Hippocrates (circa 460-377BC)

- Correlation between stress and heart disease
- Is stress psychological or physiological
- How do emotions, feelings and beliefs 'translate' in physiological terms?
- How do physical conditions like blood pressure impinge on out mental and emotional wellbeing?
- This thinking went against the thinking of the time which explained the causes of diseases as being punishments from the Gods.

Rene Descartes (1596 – 1650)

- Mind; concern of organized religion
- Body: concern of the physician

Descartes believed 'there are two distinct and separate substances in the world: matter (body), which behaved according to physical laws, and spirit, which was dimensionless and immaterial'.

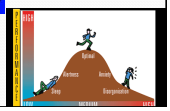
Hans Selye 1907-1982

General Adaptation Syndrome:
three distinctive phases:

Exhaustion

Resistance

Alarm



The Dynamics Between Stress and Disease

- To understand the relationship between stress and disease, one needs to understand that several factors act in unison to create a pathological outcome including:
  - Cognitive perceptions of a threatening stimulus
  - Activation of the sympathetic nervous system
  - Engagement of the endocrine system
  - Engagement of the immune system

- Heart pumps harder
- Sweat glands increase activity
- Stomach starts to feel queasy

Is this a mental or a physical phenomena?

Fight / flight mode - stress

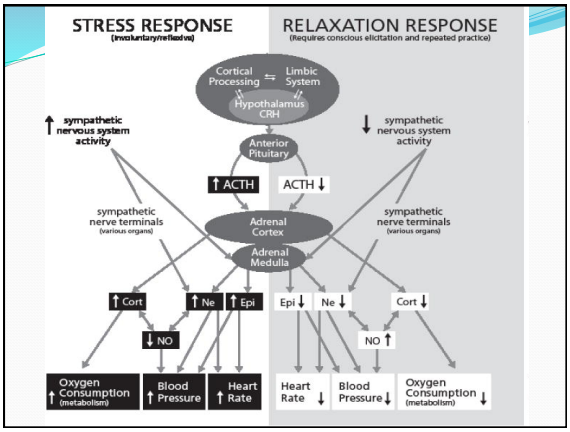
Sympathetic nervous system dominance

- Tachycardia
- Mouth dries up
- Forehead tenses
- Eyes strain
- Jaws and teeth are clenched
- Anger/hostility
- Perspiration increases
- Breathing becomes shallow and fast
- Vasoconstriction
- Increased white blood cells
- Blood sugar increases
- Blood pressure increases
- Stomach butterflies/digestive system suspended

Rest and digest - relaxed

Parasympathetic nervous system dominance

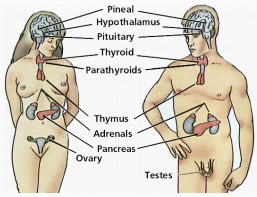
- Heart rates decreases
- Breathing deepens and slows
- Salivation returns to normal
- Facial muscles relax
- Pupils return to normal
- Muscles relax
- Blood pressure reduces
- Blood sugar reduces
- Sweat glands close
- Digestion returns to normal
- Bladder contracts
- Restful and calm feelings



Consequence

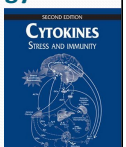
STRESS…May contribute in a significant way to every major illness and condition including:

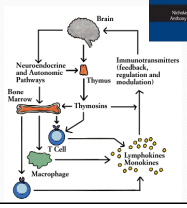
- Heart disease
- Diabetes
- Cancer
- Infections
- chronic pain
- Anxiety
- Depression
- PTSD
- as well as early death.



Psycho-Neuro-Immuno-Endocrinology

- The interdisciplinary field devoted to the study of behavioral-neural-endocrine-immune system interactions and the circuitry involved in the omnidirectional conversation among the brain, the endocrine and the immune system.





Robert Ader

Center for Psychoneuroimmunology Research, Department of Psychiatry, University of Rochester School of Medicine and Dentistry, NY

Conditioned immunomodulation: research needs and directions

..... It is now clear that immune function is influenced by autonomic nervous system activity and by the release of neuroendocrine substances from the pituitary.

- Conversely, cytokines and hormones released by an activated immune system influence neural and endocrine processes.
- Regulatory peptides and receptors are expressed by both the nervous and immune systems enabling each system to monitor and modulate the activities of the other.
- It is hardly surprising that immunologic reactivity can be influenced by stressful life experiences or by Pavlovian conditioning.

Brain Behav Immun. 2003 Feb;17 Suppl 1:S51-7

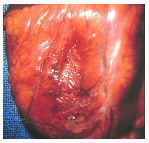
Pain and the Brain

- Pain is generated in the brain
- It is physical and it is mental
- It is physical in the sense that the nerve cells and their activity are physical
- It is mental pain in the sense that it is subjectively experienced in: what is generally called the mind
- Example phantom limb and referred pain

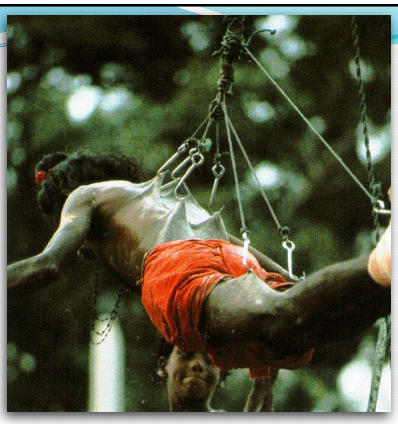
Howard Field, pain and its transformations

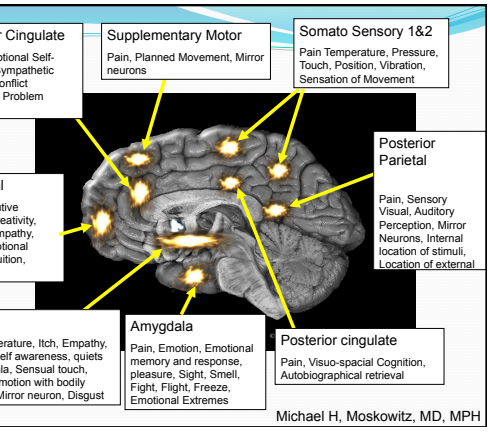
Pain (like the brain itself) occupies a strange position between biology and culture

- What is Pain exactly?
- What is its relation to suffering?
- How many sorts of pain are there?
- Can "physical" pain be separated from "mental" or "spiritual" pain?
- Is pain private and incommunicable?

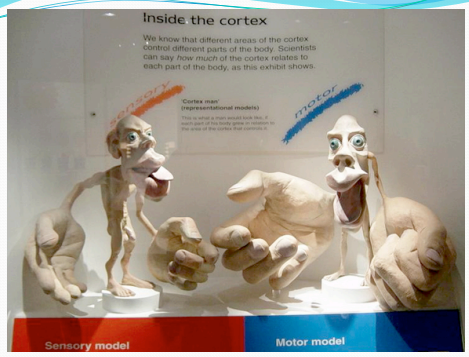


Sara Coakley, Pain and its Transformations





Michael H, Moskowitz, MD, MPH

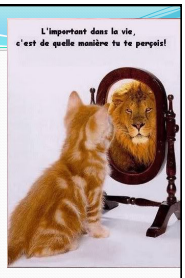


The Psychology of Pain

- Memories, emotions, thoughts, and especially expectations are known to have an enormous influence on how people perceive pain.
- In fact, the regions of the forebrain that are involved in emotion (the frontal and temporal lobes and the amygdala) are known to feed into a neural circuit in the brain stem that directly controls the pain pathways.
- Furthermore, the control exerted by this pathway is bidirectional, meaning that it can either reduce or enhance pain.

Robinson, Riley III, Psychosocial factors in pain

Perception



- Sensory stimuli impinge on a brain that is conditioned by genetics and learning
- The brain actively uses inputs to combine and shape images that are selected from a potentially large but limited preexisting file
- Each individual has a NS shaped by his/her unique experience
- Powerfully influenced by language, religion and other cultural factors

Howard Field, pain and its transformations

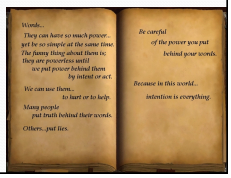
Pain - Perception

- Pain is a subjective experience
- Everyone learns the meaning of "pain" through experiences usually related to injuries in early life
- As an unpleasant sensation it becomes an emotional experience
- Pain is a significant stress physically, emotionally

Robinson, Riley III, Psychosocial factors in pain

Do Words hurt?

- Processing of pain-related words leads to activations within regions of the pain matrix.
- Regions activated by pain related words differ according to the attentional focus induced by the tasks.
- "This job is a real headache."
- You are a "pain in the neck"
- "This makes me feel bad"
- "This is sickening"

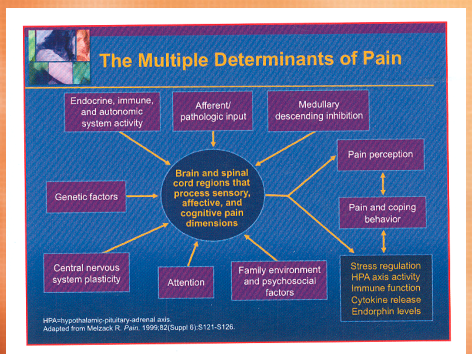


Facial Expression and Pain

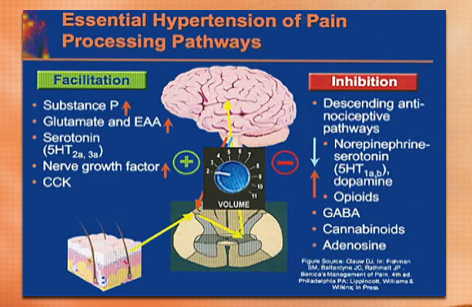
- The facial expression of pain is a multidimensional response system that differentially encodes affective and sensory pain qualities. This differential encoding might have evolved to guarantee that the specific characteristics of one's pain experience are facially communicated, thereby ensuring adequate help and support from others.

Kunz M, Lautenbacher S, LeBlanc N, Rainville P. Pain. 2012 Feb;153(2):350-8

Dr. Alain Watier



Dr. Alain Watier



Dr. Alain Watier

The descending pain modulation system is accessible by both behavioral and pharcacological approaches.

Could this system improve with practice ???

Dr. Alain Watier

INNITIATE ABILITY TO LEARN TO MODIFY AND MODULATE «AUTONOMIC» RESPONSE TO REACH A HEALTHIER HOMEOSTATIC STATE

- Heart beat
- Respiratory rate
- Type of breathing
- Blood pressure
- Brain wave patterns
- Electro-dermal response
- Skin temperature
- Sweat response
- Vasospasm
- Vasodilatation
- Muscular spasms

SELF-REGULATION

Dr. Alain Watier

- Our brain changes automatically, instantly, efficiently, seamlessly and constantly in response to changes in our body.
- The messengers are our senses, thoughts, beliefs, memories, emotions and movement. They bring in constant brain altering data.
- The brain also changes in response to injuries, disease, traumatic events and stressful situations.

Dr. Alain Watier

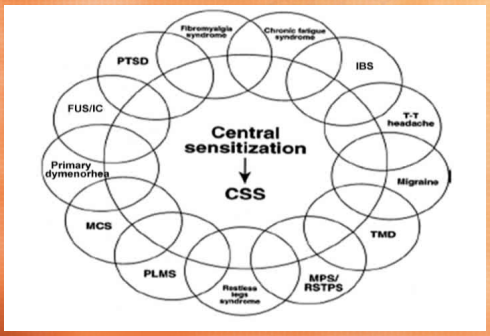
- Synapses form and disconnect at about the same rate
- Areas of the thinking brain have shown rates of 7% per week of making and breaking connections
- Hippocampus (memory) and olfactory bulb (scent) acually make new brain cells-9000 per week in adult hippocampus

Dr. Alain Watier

« When we wish to perfect our senses, neuroplasticity is a blessing, when it works in the service of pain, plasticity can be a curse »

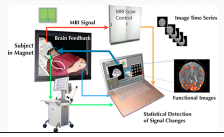
Norman Dodge

Dr. Alain Watier



Real-time fMRI applied to pain management.

- Real-time fMRI feedback is a potential tool for pain modulation that directly targets the brain with the goal of restoring regulatory function
- rapidly developing technology that has evolved from simple proof of concept experiments to demonstrations of learned control of single and multiple brain areas.
- applications including mood regulation, language processing, neurorehabilitation in stroke, enhancement of perception and learning, and pain management.



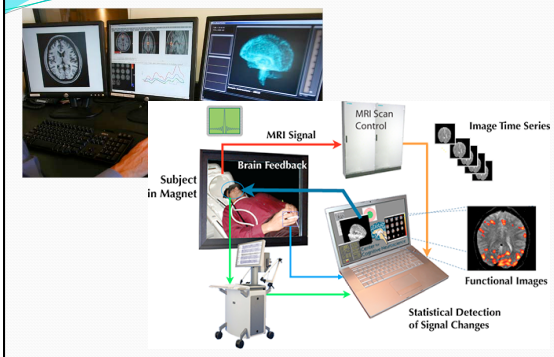
Chapin H, Bagarinao E, Mackey S.

fMRI to control Pain

- Individuals can learn to directly control activation of localized regions within the brain
- Control over the endogenous pain modulatory system can enable a mechanism for clinical control over pain
- Using real-time functional MRI (rtfMRI) to guide training, subjects were able to learn to control activation in the rostral anterior cingulate cortex (rACC), a region putatively involved in pain perception and regulation. When subjects deliberately induced increases or decreases in rACC fMRI activation, there was a corresponding change in the perception of pain caused by an applied noxious thermal stimulus.
- Chronic pain patients trained to control activation in rACC reported decreases in the ongoing level of chronic pain.

deCharmset alNatl Acad Sci U S A. 2005 20; 102(51): 18626–18631.

Mind Over Matter, With a Machine's Help



http://www.nytimes.com/2007/08/26/business/yourmoney/26stream.html?_r=1

Endogenous modulation of pain in functional gastrointestinal disorders

Cognitive, emotional, autonomic and spinal reflex pathways effectively orchestrate supraspinal and spinal pain modulation

Endogenous pain modulation has been studied in visceral pain conditions and abnormal regulation has been shown in irritable bowel syndrome (IBS) and functional dyspepsia, as well as other chronic pain syndromes.

An altered modulatory balance may well be a unifying pathophysiological mechanism in FGID as it can be driven by both top-down (ie, CNS pathology) and bottom-up (ie, peripheral immune activation) influences,

Therapeutic manipulation of the modulatory system is possible by both pharmacological and non-pharmacological means.

Wilder-Smith CH. Gut. 2011 Nov;60(11):1589-99.

Pain Attenuation through Mindfulness

- Mindfulness practitioners and controls received unpleasant electric stimuli in the functional magnetic resonance imaging scanner during a mindfulness and a control condition.
- Mindfulness practitioners, but not controls, were able to reduce pain unpleasantness by 22% and anticipatory anxiety by 29% during a mindful state. In the brain, this reduction was associated with decreased activation in the lateral prefrontal cortex and increased activation in the right posterior insula during stimulation and increased rostral anterior cingulate cortex activation during the anticipation of pain.
- These findings reveal a unique mechanism of pain modulation, comprising increased sensory processing and decreased cognitive control.

Gard T, Hölzel BK, Sack AT, et al Cereb Cortex. 2011 Dec 15.

Mind over Pain

- Grant and Rainville exposed 13 Zen masters and 13 comparable non-practitioners to equal degrees of painful heat while measuring their brain activity in a functional magnetic resonance imaging (fMRI) scanner.
- The meditators reported feeling less pain than the control group.
- The meditating group reported feelings of pain at levels below what their neurological output from the fMRI indicated.
- Researchers also found that compared to people who don't meditate, meditators have thicker gray matter and central brain regions, specifically in an area know to influence perceptions of pain (the anterior cingulate).
- The neuroplastic differences found in the brains of meditators were the real cause of their lower sensitivity to pain.

http://www.mindful.org/news/mind-over-pain

Mind over Matter

- Expectation of pain relief can substantially change perceived painfulness of visceral stimuli which are associated with activity changes in the thalamus, prefrontal, and somatosensory cortices.
- Modulatory cortical networks involved in placebo analgesia largely overlap those involved in the regulation of emotional processes.
- Importance of effective communication between the healthcare provider and patient in establishing a true and trusting relationship.
- Equally crucial to obtain information regarding his or her emotions, perceptions and beliefs regarding the disease

Mirror Therapy

- Mirror visual feedback originally devised as a therapeutic tool to relieve perceived involuntarily movements and paralysis in the phantom limb.
- Since this pioneering work was conducted in the mid-1990s, the technique has been applied to relieve pain and enhance movement in other chronic conditions such as stroke and complex regional pain syndrome (CRPS) type 1.

McCabe, Haigh, Blake., Curr Pain Headache Rep. 2008 Apr;12(2):103-7

Learning

- If prefrontal functioning is impaired placebo responses are reduced or absent similar to dementia seen in patients suffering from Alzheimer's disease.
- The placebo effect is a learning phenomenon

Pain and the Brain

- Clinicians who specialize in treating chronic pain now recognize that it is not merely a sensation, like vision or touch, but rather *chronic pain is strongly influenced by the ways in which the brain processes the pain signals.*

Andrew R. Block, PhD, Chronic Pain Coping Techniques - Pain Management

Pain and the Brain

- Chronic pain can provoke emotional reactions, such as fear or even terror, depending on what we believe about the pain signals.
- In other cases (such as in sports or another engaging, rewarding activity), chronic pain may be perceived by the individual as merely a nuisance, a feeling to be overcome in order to be able to continue in the activity.

Andrew R. Block, PhD, Chronic Pain Coping Techniques - Pain Management

Brain and the Pain

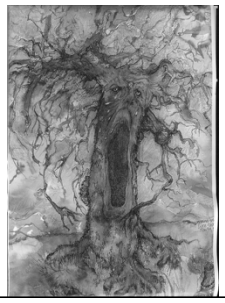
- The important role the mind plays in chronic pain is clearly recognized in the medical literature, as well as in the International Association for the Study of Pain's definition of pain, which states that **pain is always subjective and is defined by the person who experiences it**.

Andrew R. Block, PhD, Chronic Pain Coping Techniques - Pain Management

Sistine Chapel ceiling,
painted by Michelangelo 1508 - 1512
commission of Pope Julius II

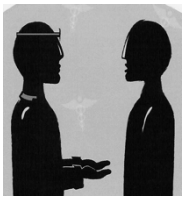
Interstitial Cystitis / Bladder Pain Syndrome

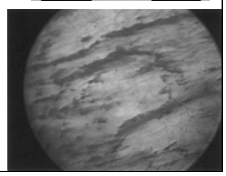
Ragi Doggweiler
University Urology
UT-Knoxville



Diagnosis

1. **Symptoms — urgency, frequency, pain/discomfort**
2. **Negative urine culture**
3. **Suspect interstitial cystitis**
4. **Complete patient history most important (enuresis, rape)**
5. **Physical examination**
6. **Rule out other urological, gynecological diseases (pelvic US, Cysto)**





Social Consequences of Pain and Irritative Voiding Symptoms

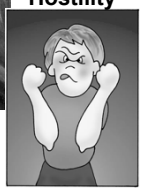
- Do they influence the ability to fulfill social role obligations?
  - Being a good mother/ father?
  - Being wife/husband?
  - Being a good team member?
  - Being a good friend?

Big Enemies

Anger

Fear

Hostility

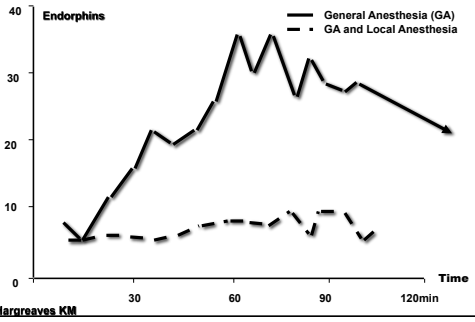


Guilt

Treatments

- Self-help
- Behavioral changes
- Physical Therapy
- Medical
- Hypnotherapy
- Trigger point treatment
- Neuromodulation
- Other

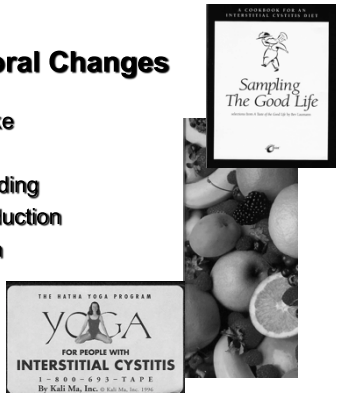
Endorphin Blood Level After Tooth Extraction



Hargreaves KM

Behavioral Changes

- Fluid intake
- Diet
- Timed voiding
- Stress reduction
- Meditation



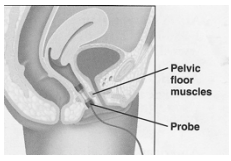
Treatment

Pharmacologic - Intravesical

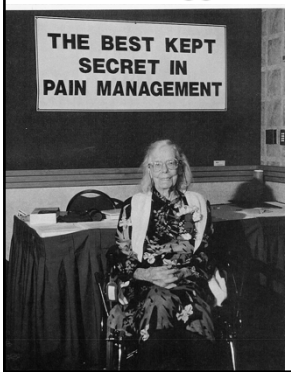
- **Heparin**
- **Elmiron**
- **Cocktails with corticosteroids, local anesthetic, heparin, and antibiotic**

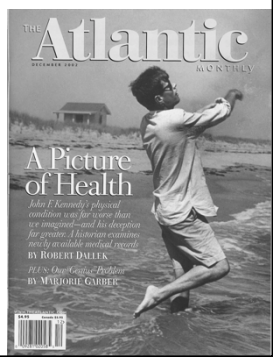
Physical Therapy

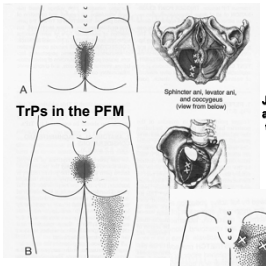
- Postural analysis
- Breathing
- Relaxation
- Myofascial release
- Pelvic floor exercises



Trigger Point Treatment

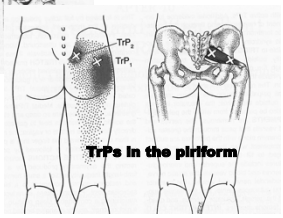




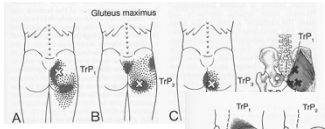


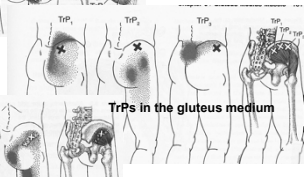
TrPs in the PFM

JG Travell, Myofascial Pain and Dysfunction, the TrP-Manual, Vol 2, 1992

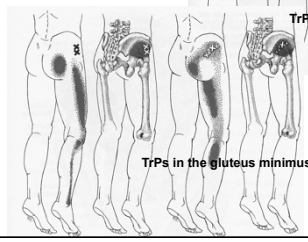


TrPs in the piriform





TrPs in the gluteus medium



JG Travell, Myofascial Pain and Dysfunction, the TrP-Manual, Vol 2, 1992

TrPs in the gluteus minimus

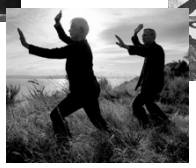
Sacral Nerve Stimulation

Indication

- Unsatisfactory results with previous treatments
- Confirm viability of nerves
- Compliance of patient

Meditation

Yoga

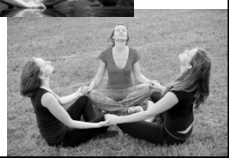


Tai Chi

Mind-Body Techniques

- Breathing
- Meditation
  - Concentrative
  - Mindful
  - Expressive
- Guided Imagery
- Journaling
- Forgiveness
- Autogenic Training

The Center for Mind-Body Medicine



To promote physical, mental, social and spiritual well-being

Music

- Source of joy
- Key to release feelings
- Helping to elicit memory of important life event
- Coping with pain (focus attention and distraction)
- Relieving anxiety and depression

Therapeutic Massage

- Improves circulation
- Speeds recovery of fatigued muscles
- Improves range of motion
- Induces muscle relaxation
- Improves neuro-muscular function
- Serum endorphins may transiently rise
- Lowers glucocorticoid levels

Hypnosis

- Hypnosis is a state of inner absorption, concentration and focused attention.
- An altered state of consciousness is induced that can be compared to daydreaming, meditation or intense concentration.

Herbs that reduce painful urination

- Marshmallow root
- Eryngo
- Corn silk
- Couch grass
- Dandelion

Prevent urinary tract infection

- Cranberry
- Uva ursi
- Purple cornflower
- Pipsissewa
- Oregon grape
- D-mannose
- quercetin
- probiotics

Homeopathic Remedies

- **Cantharis** (Sudden burning, Urgency and frequency, Burning or cutting pains before, during or after voiding, Sever pain making patient restless, Passing drops only)
- **Apis**: Burning or stinging pain, Passing urine in drops, Sever pain and urging, Symptoms worse at night, Abdomen sensitive to slightest touch
- **Aconite**: Chill in the bladder, Difficulties or painful to pass urine, retention, must stand up to void, irritation after catheter, anxiety, fear, restlessness, sever pain in urethra at the end of urination

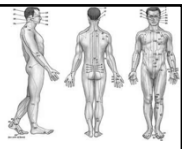
Homeopathic Remedies

- **Nux Vomica**: After excess food, alcohol, coffee or drugs, pain in urethra and/or bladder before and during urination or during urge to urinate, urge for BM accompanies painful urge to void
- **Staphysagria**: Bladder infection after intercourse, UTI after physical or emotional abuse or some type of great embarrassment, Sensation a drop of urine is continually rolling through the urethra
- **Pulsatilla**: Urging worse lying on the back or turning from side onto the back, Involuntary dribbling from coughing, sneezing, laughing or surprise

Homeopathic Remedies

- **Berberis** : Pain back in area of ureters or kidneys, worse with pressure, motion, or jarring, Pain during or after urination extending from bladder to the urethra, or from urethra to the pelvis, thighs or back
- **Equisetum**: Bladder pain worse especially after urination, Involuntary incontinence, perhaps at night

Acupuncture



- Acupuncture originated in China thousands of years ago, but over the past decades its popularity has grown significantly.
- Traditional Chinese theory explains acupuncture as a technique for balancing the flow of energy or life force — known as qi or chi (chee) — that flows through pathways (meridians) in the body.
- By inserting needles into specific points along these meridians the energy flow will re-balance.

Auricular Acupuncture

- Auricular Acupuncture: ear is used to stimulate various organs and meridians in the body. The ear represents a fetus in the womb.
- It is a microcosm of the macrocosm: the ear represents the entire body
- Hundreds of points on the ear, when treated with a needle trigger the healing electrical impulses from the ear through the brain to the connected part of the body.

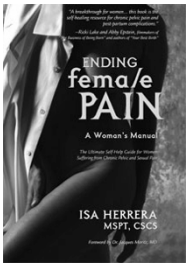
Sleep

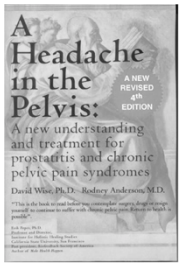
- Disturbances of sleep cause or modulate acute and chronic pain
- Techniques to improve sleep may be useful additions to pain management programs in osteoarthritis, and possibly other chronic pain conditions as well

Lautenbacher, Kundermann

Vitiello, Rvbarczyk, von Korff, Stepanski

Self-Help Guide





Positive Thinking

- Positive affect has been associated with better health outcomes, including chronic pain.
- The findings from this study demonstrate the mediating role of positive affect in explaining the relationship between pain-related coping efficacy and interference in social functioning in a sample of chronic pain patients.

Pain. 2010. Positive Affect Mediates the Relationship Between Pain-Related Coping Efficacy and Interference in Social Functioning. Park SH, Sonty N

Avoid

- Watching the news more than 10 minutes/day
- Negative talking and thinking
- Excessive Stress
- Isolation
- Staying in bed all day long

Stay in charge, your are the CEO of your body!!

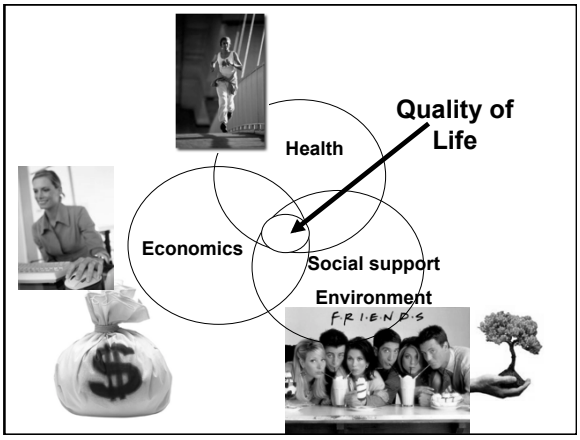
What are some psychosocial protective factors?

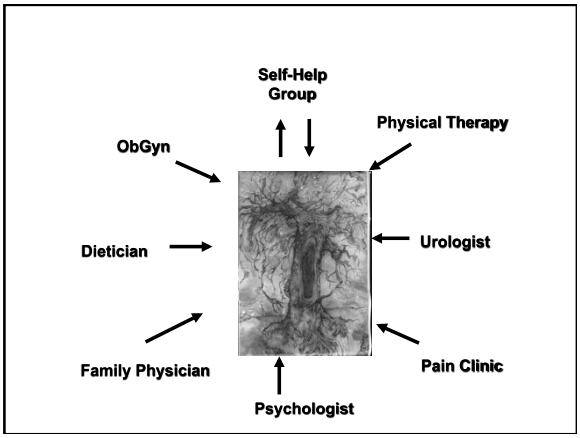
Buffers reduce the negative effects of a risk factor (i.e. stress).

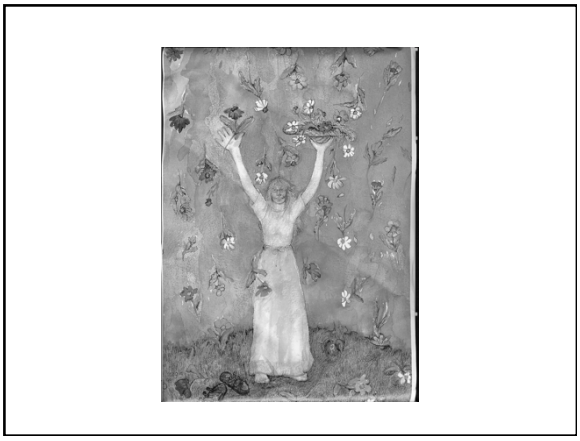

social support


self-efficacy


optimism


Quality of Life
Health
Economics
Social support
Environment
FRIENDS


Self-Help Group
Physical Therapy
ObGyn
Dietician
Urologist
Family Physician
Pain Clinic
Psychologist



Japanese approach: interstitial cystitis and its related symptom syndromes – ‘pain’ matters

Taxonomy among interstitial cystitis (IC) and its related symptom syndromes, painful bladder syndrome (PBS), bladder pain syndrome (BPS), and overactive bladder syndrome (OAB) is in confusion[1, 2]. This confusion is divided into 1) confusion of disease with symptoms and 2) confusion of pain for researchers with pain for patients.

IC is a name of disease. It presumes pathology in the urinary bladder, if any, and has been long used in medical and public societies. Unfortunately, however, we have no clear definition or no definite diagnostic criteria for IC. IC or IC-like patients are diverse in symptoms (with or without pain), cystoscopic findings (with or without ulcers) and histology (with or without inflammation)[3]. As such, when we encounter patients suggestive of IC, conservatively we are likely to call them by symptom syndrome (PBS or BPS). A symptom syndrome is convenient for describing the complex of symptom(s) in a word. However, it is reminded that PBS or BPS is a symptom-based diagnosis referring to symptoms only. A chimeric term connecting a disease name (IC) and a syndrome name, IC/PBS (IC/BPS), apparently indicates both the disease and the symptom complex[4]. It is inaccurate and unclear. The disease name and symptom syndrome names should be used with clear distinction.

PBS and BPS contains the words ‘painful’ and ‘pain’, which leads to a misunderstanding that the patient must complain of pain. In reality a substantial proportion of patients do not[5, 6]. According to The International Association for the Study of Pain (IASP), pain is ‘an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in such damage’ [7]. PBS is defined by ICS as ‘the suprapubic pain related to bladder filling, accompanied by other symptoms such as increased daytime and night-time frequency, in the absence of proven urinary infection or other obvious pathology’ [8]. The Society for Urodynamics and Female Urology (SUFU) defines PBS as an unpleasant sensation (pain, pressure, discomfort) perceived to be related to the urinary bladder, associated with lower urinary tract symptoms of more than six weeks duration, in the absence of infection or other identifiable cause[9]. The Longman Dictionary of Contemporary English says ‘pain is the feeling you have when part of your body hurts’. Thus pain for researchers would be a kind of unpleasant

sensations including discomfort and pressure, while it is not for patients. Pain is pain and discomfort is discomfort for them; pain is not a kind of discomfort. This discrepancy can lead to untoward consequences to patients' benefit by excluding painless patients from the scope of PBS or BPS. A new symptom syndrome which encompasses pain in a broader sense but does not carry 'pain' in the term is needed.

To solve these confusions, we suggest 1) defining IC as a disease, 2) coining a new symptom syndrome, hypersensitive bladder syndrome (HSB), and 3) using IC and HSB according to their definitions[10].

We have defined IC as 'a disease of the urinary bladder diagnosed by three conditions, 1) lower urinary tract symptoms such as bladder hypersensitivity, urinary frequency, bladder discomfort and bladder pain, 2) bladder pathology such as Hunner's ulcer and mucosal bleeding after over-distension, and 3) exclusions of confusable diseases such as infection, malignancy and calculi of the urinary tract. Bladder bleeding after overdistension is not highly sensitive or specific, although it is the sole abnormal endoscopic finding when Hunner's ulcer is absent.

HSB is defined as bladder hypersensitivity, usually associated with urinary frequency, with or without bladder pain. It would look like the definition of OAB (urinary urgency, usually associated with urinary frequency, with or without urgency incontinence) [8]. Hypersensitive bladder was once used as a term for idiopathic sensory urgency and 'early' IC[11], and implicated with overexpression of TRPV1 mRNA[12], responsiveness to intravesical resiniferatoxin or possible overlapping with OAB[13].

HSB and OAB are parts of a syndrome, 'frequency/urgency syndrome'. Urgency in this context means the strong urge to void or the pressing need to void (in a broader and more common sense). Urgency in OAB is characterized by sudden onset and/or fear of leakage, while urgency in HSB is of a persistent nature and associated with the fear of pain[14]. OAB with leakage (OAB wet) is a typical OAB. PBS is a typical HSB. IC is a representative disease causative of HSB, most typically of PBS, but may be painless or indistinguishable from OAB in symptoms (Figure).

HSB can be used as a descriptive term for symptom complex, or as a diagnostic name for the condition that is suspected of IC but has not fulfilled the requirements for IC diagnosis. HSB may occur with evidence for bladder pathology or without it; chronic pelvic pain or chronic pain

disorders such as irritable bowel syndrome, chronic fatigue syndrome and fibromyalgia.

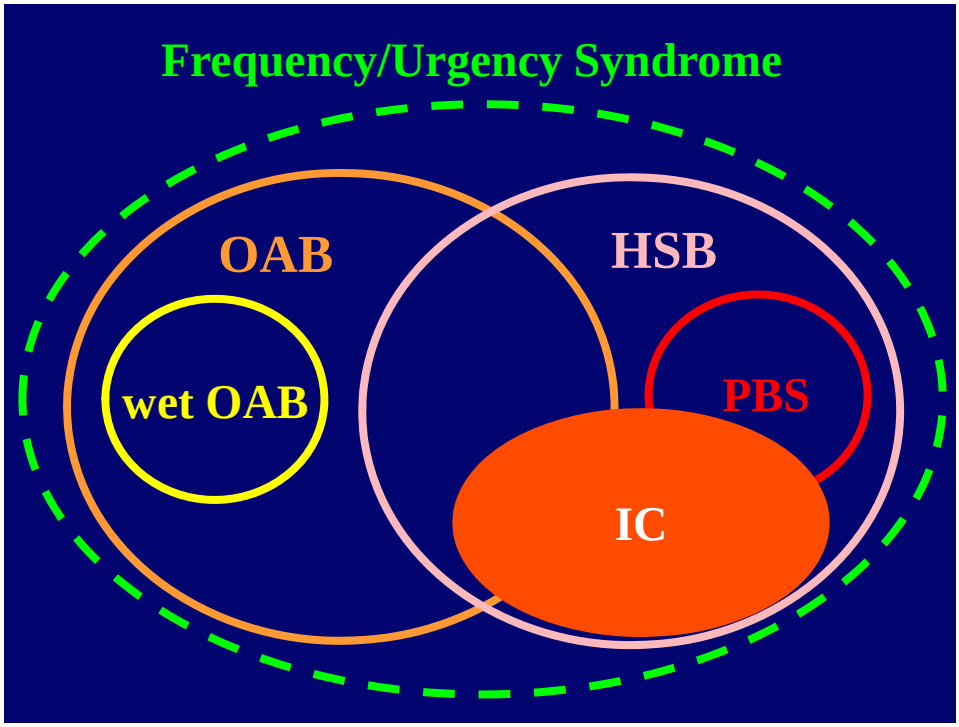
Figure legend: Interstitial cystitis and its related symptom syndromes

Frequency/urgency syndrome is characterized by frequency (frequent voiding) and urgency (strong desire to void). It is an inclusive term including overactive bladder (OAB) syndrome, hypersensitive bladder (HSB) syndrome, and other conditions that is associated with frequency and urgency. Urgency in OAB is characterized by sudden onset and/or fear of leakage, while urgency in HSB is of a persistent nature and is associated with the fear of pain. OAB wet is a subgroup meaning OAB with leakage. Likewise PBS (BPS) is a subgroup of HSB with pain. Interstitial cystitis (IC) is one of the diseases presenting frequency/urgency syndrome, predominantly overlapping HSB and PBS, and occasionally mimicking to OAB.

References

1. Homma Y. Lower urinary tract symptomatology: its definition and confusion. Int. J. Urol. 2008; 15: 35–43.
2. Bogart LM, Berry SH, Clemens JQ. Symptoms of interstitial cystitis, painful bladder syndrome and similar diseases in women: A systematic review. J. Urol. 2007; 177: 450–6.
3. Teichman JM, Parsons CL. Contemporary clinical presentation of interstitial cystitis. Urology 2007; 69: 41–7.
4. Warren JW, Meyer WA, Greenberg P, Horne L, Diggs C, Tracy JK. Using the International Continence Society's definition of painful bladder syndrome. Urology 2006; 67: 1138–42; discussion 1142–3.
5. Irwin P, Samsudin A. Reinvestigation of patients with a diagnosis of interstitial cystitis: common things are sometimes common. J. Urol. 2005; 174: 584–7, discussion 587.
6. Ito T, Ueda T, Honma Y, Takei M. Recent trends in patient characteristics and therapeutic choices for interstitial cystitis: analysis of 282 Japanese patients. Int. J. Urol. 2007; 14: 1068–70.
7. Merskey H. The taxonomy of pain. Med. Clin. North Am. 2007; 91:13–20, vii
8. Abrams P, Cardozo L, Fall M et al. The standardisation of terminology of lower urinary tract function: Report from the Standardisation Sub-committee of the International Continence Society. Neurourol. Urodyn. 2002; 21: 167–78.
9. Hanno P, Dmochowski R. Status of international consensus on interstitial cystitis/bladder pain syndrome/painful bladder syndrome: 2008 snapshot. Neurourol Urodyn. 2009;28:274-86.
10. Homma Y, Ueda T, Tomoe H, Lin AT, Kuo HC, Lee MH, Lee JG, Kim DY and Lee KS. Clinical guidelines for interstitial cystitis and hypersensitive bladder syndrome. Int J Urol. 2009;16: 597-615.
11. Frazer MI, Haylen BT, Sissons M. Do women with idiopathic sensory urgency have early interstitial cystitis? Br. J. Urol. 1990; 66: 274–8.
12. Liu L, Mansfield KJ, Kristiana I, Vaux KJ, Millard RJ, Burcher E. The molecular basis of urgency: regional difference of vanilloid receptor expression in the human urinary bladder. Neurourol. Urodyn. 2007; 26: 433–8; discussion 439; discussion 451–3.
13. Yamaguchi O, Honda K, Nomiya M et al. Defining overactive bladder as hypersensitivity. Neurourol. Urodyn. 2007; 26: 904–7.
14. Diggs C, Meyer WA, Langenberg P, Greenberg P, Horne L, Warren JW. Assessing urgency in interstitial cystitis/painful bladder syndrome. Urology. 2007; 69:210-4.

Figure : Interstitial cystitis and its related symptom syndromes



ICS Workshop Beijing 2012

A PATIENT PERSPECTIVE

Jane Meijlink, chairman International Painful Bladder Foundation (IPBF)

The diagnosis

The patient's problems begin with seeking help from a health professional. Urogenital diseases are embarrassing and intimate and still seen as taboo and stigmatised around the world. In some cultures, it can be a very big step indeed to consult a health professional about such intimate problems and many patients may be initially reluctant to do so. Once this step has been taken to seek help, it may take some time - even years - before finally getting the right diagnosis, despite greatly increased awareness in recent years.

A primary health provider may assume that the symptoms are caused by an infection and repeatedly prescribe antibiotics, even when urine tests for infection are negative. The fact that many patients may have extensive pelvic pain means that in the past many women have been referred to gynaecologists and have consequently been subjected to all kinds of unnecessary treatment including surgery or have even been told that their symptoms are "all in the mind". And this applies to men just as much as women. It can therefore come as an immense relief to a patient to be given the diagnosis of IC, a disease that actually has a name to it. Patients feel that their debilitating symptoms are at last being taken seriously by the medical profession.

The treatment

However, the patient then is confronted by the problem that, despite all the research and studies that have been carried out, no possibility has as yet been found of curing this disease, nor is there a single drug that is effective in all patients. Until phenotyping is improved, treatment remains largely a question of trial and error. Furthermore, patients then discover that many of the treatments developed for IC are not available in many countries, and if they are available they may be unaffordable and not reimbursed by medical insurances. This is very frustrating for patients who have increased access to the internet and can see that patients in other countries may have more treatments available or that many treatments are available but they themselves cannot afford them. In addition, treatment may give rise to further problems since many IC patients appear to have side effects more frequently and more intensively than other people, while a group of patients suffer from multiple drug and chemical hypersensitivity. And when treatments fail, there is the risk of patients falling prey to charlatans who offer unproven treatments online, claiming miraculous cures.

It is important for patients to be encouraged to play a positive, active role in the management of their disease, to be educated about their bladder problem, and to understand what part they themselves can play in lifestyle modification to ameliorate their symptoms and improve their quality of life. A positive, proactive approach can make all the difference. Complementary and alternative management can help to relax the patient and form a good all-round package of treatment. This kind of therapy can often help a patient to achieve relaxation of body and mind, with progressive relaxation of tense and tender pelvic floor muscles, which may help in reducing pain. Any therapy where the patient can relax on a couch and have the time to discuss their symptoms and the impact of these symptoms on their life is likely to have a stress-reducing effect.

The impact on the patient

Pain in the bladder is a particularly unpleasant kind of pain: unlike some kinds of pain, it does not improve if you take a rest. IC bladder pain goes on 24 hours a day with little or no respite. It consequently prevents you from relaxing, disrupts sleep, leading to fatigue, depression, tight,

stressed muscles not only around the bladder and in the pelvic floor but all over the body including the shoulders and neck, making the patient feel tense and stressed. And this pain is chronic with no end in sight. This bladder pain also has consequences which greatly exacerbate the problem because patients not only have pain, they also need to keep emptying their bladder even when there are just a few drops of urine in the bladder. Furthermore, they may also have to find a toilet urgently. This is not an insurmountable issue if at home, but a dire emergency when out and a major cause of stress, anxiety and sheer panic and all the patient can think about is looking for toilets? Back in 1914, **Dr** Guy Leroy Hunner (1868-1957), gynaecologist and obstetrician at the John Hopkins Hospital in Baltimore, wrote that one of his patients *"often had such extreme urgency that she had to leave a streetcar in order to enter the nearest house and ask for permission to void."* This frequent and urgent need to urinate can form an obstacle to work, travel, visiting friends, or simply going shopping. Before every outing, the patient will carefully plan a network of toilets. Many patients say: "If I don't think I will be able to find a toilet, I simply don't go out". This kind of situation can make a patient afraid to leave the safety of their home. Indeed, there are many patients who will do everything to avoid leaving their home. And let us not forget the patients in less developed countries where public toilet facilities may be few and far between.

Impact on sleep

The pain and the frequent, urgent need to urinate make patients exhausted from lack of sleep. Some severe patients need to urinate 40-60 times a day and may sleep no more than 20 minutes at a time at night. Even milder cases may have to get out of bed several times in the night. Without proper restorative sleep, or with disrupted sleep, a person deteriorates both physically and psychologically. "Frequent nocturnal awakenings, particularly during the first part of the night, decrease the restorative function of sleep and can cause daytime sleepiness and impaired cognitive function", noted Professor C. Chapple. According to the experts, restorative sleep occurs in the first part of the night and it is precisely this early part of the night that is most likely to be disturbed in IC patients. A study in Taiwan concluded that "Since disturbed sleep is common in patients with IC, and poor sleep quality may cause a significant adverse impact to both physical and mental health, management of sleep disturbances should be considered an important factor in the overall management of IC". Fatigue is still frequently ignored, misunderstood, dismissed as psychosomatic or simply considered unimportant by many of the medical profession, but it is also equally misunderstood by the patient's family and environment. This can create a very unsympathetic environment for a patient suffering from fatigue and make it so much more difficult to cope with the condition. Fatigue may play an important role in reducing the patient's quality of life.

Impact on social, psychological, occupational, domestic, physical and sexual life

IC can have a major impact on the social, psychological, occupational, domestic, physical and sexual life of the patient and affect a patient's quality of life and the very structure of their life. The IC patient not only has to cope with the bladder disease itself and all its symptoms, but also the consequences of this disease on his/her life in the widest sense. Psychologically, chronic, persistent pain in the bladder can turn a normal, cheerful person into a depressed, panicking, irritable, emotional recluse who is tired all the time and unable to cope, and who feels stigmatised and isolated from any meaningful, fulfilling role in society. Patients have reduced self-esteem, lack of self-confidence, poor self-image, and suffer physically and psychologically.

The social consequences of IC should not be underestimated. Through embarrassment that they have to use the toilet so frequently, patients may no longer visit even their family and friends. It's difficult for them to go out to a cinema or theatre or even just for a walk in the park. Travel is extremely difficult. Their social life may be non-existent and they may feel isolated from the world around them.

Impact on work

The frequent need to urinate may make it difficult for some patients to carry on working or they may be forced to change to a different type of job that allows them the possibility of easy, frequent access to toilets. Work in some jobs becomes impossible, even dangerous, when you have to keep running to the toilet, are feeling very tired and generally unwell. The impact of IC on their work and career may cause IC patients and their family considerable financial loss, reducing everyone's quality of life.

Impact on the family

IC also has an impact on the entire family from many other points of view. It alters relationships with the partner and children because the bladder condition makes the patient unable to act like a normal parent or a normal partner. An IC patient is tired and irritable from lack of proper sleep, from coping with the pain and from the constant trips to the bathroom. The inability to cope, to look after the family, to do normal activities with partner and children, may give the patient a sense of guilt. Members of the family don't really understand IC because they can't see anything wrong on the outside. So unless they are very understanding, they may become resentful at the impact on their lives.

Impact on sexual activity

One important impact of pain is on sexual relationships. IC can have a big impact on sexual relationships since sexual intercourse may be painful for both male and female patients. It leads to marital dysfunction and distress, feelings of guilt, and many relationships break down because of this. Patients feel sexually inadequate and may find it difficult to talk to doctors or anybody else, even their partner, about this problematic intimate side of their life. Sex is a normal part of the lives of human beings. If this form of intimacy is taken away, cracks may begin to appear in a relationship about which a patient may be very concerned and feel deeply guilty. This is an aspect of the impact of IC on a patient's quality of life which is of very great importance and should not be underestimated.

Impact on life and identity

All of this can mean that a patient has to adjust his/her life, sometimes being compelled to make major changes, rather like acquiring a new identity. And this is precisely the problem since most patients don't want to have to change their whole life. They find it difficult to accept the new situation and especially the fact that this new situation is likely to be permanent for the rest of their life. But if you are to survive as a patient, you have to learn to change your goals and priorities in life and set realistic new priorities. But this isn't easy either because IC patients tend to live day by day. They are even afraid to look into the future.

Comorbidities

Many patients with IC also have one or more non-bladder disorders or symptoms in addition to their IC problem, including other chronic pain syndromes (such as fibromyalgia, migraine and chronic pelvic pain); chronic fatigue; autoimmune diseases (such as Sjögren's syndrome, systemic lupus erythematosus and rheumatoid arthritis); gastrointestinal (irritable bowel syndrome, Crohn's disease/ulcerative colitis) or gastro-esophageal disorders (GERD); allergy/hypersensitivity (including asthma and drug/chemical hypersensitivity); as well as other urogenital disorders such as vulvodynia or chronic non-bacterial prostatitis. The associated disorders appear to fall into three main categories: allergy/hypersensitivity, pain syndromes, systemic autoimmune diseases. While some patients suffer from depression and anxiety/panic disorders, it is unclear to what extent these are a consequence of the IC and its symptoms, or perhaps caused by another concomitant (systemic autoimmune) disorder, or even a susceptibility triggered by either the IC or an associated disorder.

Since IC patients are generally treated by a urologist or urogynaecologist, some of these non-bladder disorders may go undiagnosed and untreated. This underlines the need for a multi-disciplinary

approach. In many patients, treating just the bladder pain, urgency and frequency is only partly going to tackle the problem and it is essential not only to take all diagnosed comorbidities into account but also to be able to recognise the possibility of other disorders potentially existing in the patient. According to Friedlander and colleagues, *"The management of IC/BPS becomes more challenging when clinicians consider comorbidities associated with this syndrome. Many of these conditions pose as additional pain generators."* This naturally means that when a patient is referred from one specialist to another, the referring doctor needs to ensure that the other specialists are fully informed of not only all the patient's IC symptoms (not only the pain), but also all comorbidities and all drugs that patient may be receiving for any comorbid disorders and how they may interact. This is the only way that a multidisciplinary approach can work in the interests of the patient.

Coping

Some patients are able to cope quite well by focusing on other things in their life, by diverting their attention away from the pain and onto something else. Others at the other extreme seem to be quite unable to do this, and their attention is constantly focused on the pain to the exclusion of all else. Patient support groups can advise on self-help strategies, and provide reliable information on the bladder condition and associated disorders. They can play an important role in providing emotional support including through patient-to-patient counselling and help-lines. However, emotional support, time, sympathy and understanding is needed from all players in the equation: for example the family doctor, the specialist, the physiotherapist, the patient's partner and family, the patient's employers as well as the support group. In some societies in the world, this is naturally going to be more restricted to for example the patient's partner and family, the local community and the district nurse.

Further information is available from: www.painful-bladder.org

References

- *Hunner GL. Elusive ulcer of the bladder: further notes on a rare type of bladder ulcer with a report of twenty-five cases. Am J ObstetDis Child 1918;78:3-8.*
- *Chapple C. Introduction and conclusions. European Urology Supplements 6 (2007) 573–575*
- *Risk factors for poor sleep quality among patients with interstitial cystitis in Taiwan.*
- *Tsai CF, Ouyang WC, Tsai SJ, Hong CJ, Lin TL. Neurourol Urodyn. 2010 Apr;29(4):568-72.*
- *Secret Suffering, S. Bilheimer, R.J. Echenberg, published by Praeger.*
- *A Headache in the Pelvis, D. Wise, R. Anderson, published by the National Center for Pelvic Pain*
- *Friedlander JI, Shorter B, Moldwin RM. (2012). Diet and its role in interstitial cystitis/bladder pain syndrome (IC/BPS) and comorbid conditions. BJU International, 109: 1584–1591. doi: 10.1111/j.1464-410X.2011.10860.x*
- *Warren JW, et al. Antecedent nonbladder syndromes in case-control study of interstitial cystitis/painful bladder syndrome. Urology 2009;73:52-7*

Appendix

QUESTIONS TO ASSESS THE POSSIBILITY OF AN INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME PATIENT HAVING ASSOCIATED DISORDERS AS A USEFUL FIRST SCREENING FOR THE PRESENCE OF THESE DISEASES

1. Allergy

1.1 Have you ever had shortness of breath, shock, angioedema, pruritis or urticaria after exposure to or ingestion of a particular drug, food, pollen, or contact with an animal?

2. Asthma

2.1 Do you have recurrent episodes of dyspnoea, coughing and wheezing?

2.2 Are these symptoms seasonal, or do they occur shortly after exposure to antigens such as animal dander, feathers, dust mites or mould?

3. Crohn's disease and ulcerative colitis

3.1 Do you often have abdominal cramp, particularly after meals?
3.2 Have you lost weight? (What was your normal weight and what did you weigh at that time?)
3.3 Do you often have diarrhoea or loose stools?
3.4 Do you often see red blood with stools?
3.5 Have you in the past had unexplained anaemia?
3.6 Do you have/have you had fistulas?

4. Fibromyalgia
4.1 Do you have diffuse musculoskeletal achiness, stiffness or exaggerated tenderness?
4.2 Do you have visible swelling of the joints? (Suggests another disease)
4.3 Do you have paraesthesia, non-restorative sleep and are you easily fatigued?

5. Irritable bowel syndrome
5.1 Do you often have abdominal pain or discomfort in association with defecation?
5.2 Do you have abdominal pain in association with a change in bowel habit?
5.3 Do you have disordered defecation such as abnormal stool frequency, abnormal stool form, defecation straining or urgency, a feeling of incomplete bowel emptying, mucus with stools or a bloated or swollen abdomen?

6. Rheumatoid arthritis
6.1 Do you have chronic symmetrical swelling and pain in multiple joints?
6.2 Do you have generalized morning stiffness lasting more than 1 hour?

7. Sjögren's syndrome
7.1 Have you had daily, persistent, troublesome dry or irritated eyes for more than 3 months?
7.2 Do you have a recurrent sensation of sand or gravel in the eyes?
7.3 Do you use tear substitutes more than 3 times a day?
7.4 Have you had a daily feeling of dry mouth for more than 3 months?
7.5 Have you had recurrently or persistently swollen salivary glands as an adult?
7.6 Do you frequently drink liquids to aid in swallowing dry food?

8. Systemic lupus erythematosus
8.1 Does the sun cause redness on areas of your skin exposed to a normal amount of sunlight?
8.2 Do you often have mouth ulcers or sores?
8.3 Do you often have painful swelling of the joints in your hands and/or feet?
8.4 Have you ever had pericarditis, pleurisy or nephritis?

(Source: Joop P. van de Merwe MD, PhD)

Notes

Record your notes from the workshop here