

PSYCHOTHERAPY FOR CONCURRENT CRPS-LIKE SYMPTOMS AND PTSD

BACKGROUND CRPS Medical Criteria

Symptoms at early stages

- ✿ Vasomotor changes - swelling and water retention
- ✿ Skin color changes - red or purple
- ✿ Change in perceived temperature to extremes
- ✿ Vascular dysregulation—hot or cold to touch
- ✿ Sweating—sometimes dripping
- ✿ Shiny skin
- ✿ Hair coarsening with unusual growth
- ✿ Extensive nail growth with brittleness

Symptoms over time

- ✿ Loss of hair and nails
- ✿ Fixed contraction of the limb
- ✿ Bone demineralization
- ✿ Muscle wasting and atrophy
- ✿ Severe pain—often sharp and burning
- ✿ Over-sensitivity to any contact, even airflow or clothing
- ✿ Over-sensitivity to cold temperatures

Potential psychological predisposing factors mentioned in the literature

- ✿ Surgery to that limb Beckmann et al, 2005
- ✿ Presurgical life stress Egle and Hoffman, 1990
- ✿ Males pre-surgically more anxious Geertzen, 1998
- ✿ Females pre-surgically more depressed Geertzen, 1998
- ✿ More pre-surgical stressful life events Buertzen, 1998
- ✿ Pain appears more acute than chronic DeGoode, 1993
- ✿ Prior abuse or cumulative trauma more likely Hardy and Merritt, 1988
- ✿ Feeling helpless about a loss related or not to the onset injury Van Houdenhove, 1993
- ✿ More covert depression, anger or hostility Rommel et al, 2005
- ✿ Configuration of the hand characteristic of anger Engle, 1959, Wickramasekera, 1988
- ✿ Meaning attached to injury affects pain outcome de Jong, 2005
- ✿ ECT improves CRPS but not depression King and Nuss, 1993
- ✿ More pre-injury interpersonal conflicts and sickness Hemler, 1988
- ✿ ↑ NE and E levels may result from pain and/or affective distress Harden et al, 2004
- ✿ Spontaneous presentation and recurrence of CRPS symptoms Beckman et al, 2005
- ✿ Concurrent with other PTSD symptoms Raus, 1999
- ✿ RSD improved with therapy for PTSD related to limb injury Gainer, 1993

Psychosomatic Symptoms and Conditions – a Natural Phenomenon

A symptom or symptom cluster having a physiological component but originating from or influenced by psychological or emotional factors

- ✿ Body cells communicate with one another and know what each other are doing
- ✿ All body cells are part of the self system
- ✿ The networks of psychosomatic connections and somatic memories exist; for examples
 - Feeling nervous, “nervous breakdowns”
 - Getting butterflies

- Anger leading to heart problems
- Perceived threat leading to mast cell activation
- Identifying or “sympathizing with” other’s falling out – mass fainting

Why is it hard to differentiate body and pain signals from emotions?

Pain and emotions are interpreted in the same area of the brain

- ✿ Nociception of current pain is interpreted according to previous associations and memories located all over the brain
- ✿ We have the potential for suffering

Pain and suffering involve the sense of self

- ✿ Suffering: perception of serious threat or damage to self or grief over loss of self esteem
- ✿ Pain: perceived threat or damage to one’s biological integrity
- ✿ The idea that pain is uncontrollable leads to stress and sets up a vicious cycle
- ✿ Anticipation and expectation of future pain can be as painful as the experience of pain

CASE STUDY

Purpose:

To discuss a light trance hypnotic technique used to treat a 37-year-old male patient presenting with PTSD and CRPS-like symptoms and pain

Case factors:

The patient was working as a photographer in a wildlife refuge when he was mauled by a wild animal. He was eventually pulled to safety but suffered multiple bites to the cervical spine, leaving bone chips near the spine and resulting in damage to the brachial plexus and to the phrenic nerve. He showed symptoms of traumatic stress disorder that led to PTSD as the factors surrounding the incident became both socially and legally challenging. The wounds led to neck pain and radiating arm pain and weakness. He suffered paralysis of the left hemidiaphragm and consequently had mechanical difficulty breathing, which exacerbated the anxiety related to the TSD. This contributed to catastrophizing. He was referred to the Chronic Pain Clinic a month after the event. A month after that, he showed symptoms of CRPS such as severe burning pain, muscle spasms, arm stiffness, and an occasionally immobile hand, with changes in color, temperature, and hand sweating at two months and at one year post-injury (when he was under considerable stress). At onset of the CRPS symptoms, he was referred to the Pain Clinic team psychologist who treats CRPS and PTSD.

Psychotherapeutic goals:

- ✿ Reduce CRPS-like symptoms described above
- ✿ Relieve PTSD symptoms (unrealistic fears, anger, anxiety, flashbacks, nightmares, and avoidance)
- ✿ Reverse sudden complicating weight loss
- ✿ Teach self hypnosis and other pain management skills

Method:

Psychotherapy included light trance hypnosis, relaxation, and self-hypnosis training to manage flashbacks, nightmares, and anxiety, and to focus his attention proactively. CBT was interlaced through the sessions to further address behavior and mind-set as needed. There were thirteen 75-90 minute psychotherapy sessions.

During the first year post-injury, medical treatment consisted of one stellate ganglion block and opioid and non-opioid medications which were rarely taken by the patient.

Related factors:

- ✿ PTSD, physical symptoms, pain and lifestyle were treated concurrently at each session.
- ✿ Patient was highly motivated to recover
- ✿ Patient was highly curious and intrigued by the mind-body approach to his symptoms
- ✿ Patient appreciated the emphasis on self-control of symptoms and emotions
- ✿ Supportive therapeutic relationship was emphasized within the hospital setting.
- ✿ Patient was seen as needed when symptoms were at their worst
- ✿ Patient practiced self-hypnotic techniques between sessions
- ✿ Occasional phone calls or emails supplemented therapy when needed, particularly in regard to flashbacks or states of anxiety triggered by events of the day

Outcome

Short term

- ✿ During the sessions, mottled skin changed back to normal color, sweating and burning pain ceased, and the shoulders relaxed.
- ✿ Patient learned to practice stress reduction when he experienced CRPS like symptoms
- ✿ Patient worked through many psychosocial (career, friendship, parenting factors that changed after the incident

Longer term, the patient

- ✿ Regained weight
- ✿ Returned to school
- ✿ Rebuilt self confidence and upgraded competence in self protection
- ✿ Has a heart condition that his cardiologists attribute to the shock of the incident; patient opted to use self-hypnosis to gain control of symptoms rather than undergo surgery
- ✿ Re-experienced the worse of his pain subsequent to extensive dental surgery when he was administered opioid pain medication which wore off; he reinitiated self hypnosis pain management
- ✿ Re-experiences pain in his shoulder only with over-use
- ✿ Re-experiences a few seconds of bolting nerve pain radiating down the affected arm only when startled by loud noises such as engine backfires

Results

Ten years out, the patient retains no CRPS-like symptoms and experienced pain when the shoulder is overused or when he is startled by loud noises. PTSD symptoms abated.

Conclusions

This lends some clinical support for the proposed cortical reorganization model in CRPS recently introduced by brain researchers (see Rationale Reference sections). Psychotherapy, including attention to psychological links between traumatic events and pain, can be a useful adjunct to early treatment of CRPS-like symptoms and PTSD.

TREATMENT TECHNIQUES (see Hernandez, 2002 and 2010)

Self-hypnotic or therapist-guided internal conversations to regain self control, calm mind and body and put things back into proper perspective

The premise

- ✿ Signals from the body that are interpreted as pain do not have to translate into suffering or lead to disruption at all levels of the self
- ✿ We can interact via the nervous system
 - ◆ Receive signals of a problem
 - ◆ Rewrite the physiology that led to that signal
 - ◆ Create a different physiology
 - ◆ Rewrite the old memory, create new associations

Goals in general

- ✿ Reinterpret and reprogram the physiological signal that becomes the awareness of pain
- ✿ Learn to read the body as part of the unconscious and gain access self-hypnotically
- ✿ Gain better integration of or control over emotions
- ✿ Eliminate suffering, nourish the spirit
- ✿ Heal the body
- ✿ Send healing down the pathway of the pain: from the mind, to the spine, to the site, or from the initial injury to the site

Specific Techniques

- ✿ The therapist will be:
 - ◆ Directing the patient to, with the mind's eye:
 - go down inside the body to see what is happening in regard to the pain signals
 - retrace the path from the pain to the source
 - ask why the pain stops where it does
 - send self-supportive, sponsoring messages to the site;
 - ◆ Teaching patient how to keep the body out of any traumatic memories and to work on the issues while continually clearing away stress & distress
 - ◆ Reframing messages about the initial injury event
 - ◆ Teaching patients to dream about the event and rewrite a better ending
 - ◆ Helping the injured sight return to normal
 - ◆ Helping the mind and the injured sight forget the injury
 - ◆ Making sure the patient can stay loving and connected to themselves and their bodies both at the same time.

How the treatment is compatible with recent fMRI clinical research: The treatment may reverse the CRPS formation process

- ✿ Right Parietal lobe –
 - ◆ Spatial/conceptual awareness of the body
 - ◆ Dissociation of the body in pain
 - ◆ May lead to more emotional and physical pain

- ✿ Right Anterior Cingulate –
 - ◆ Awareness of the body in pain
- ✿ Right ventral pre-frontal cortex –
 - ◆ Sends out a soothing response to awareness of emotional or physical pain
- ✿ Reconnection of body parts with comfort

RATIONALE – WHY THIS MAY WORK

What CRPS might have to do with PTSD and psychological processing

Remembering what we mean by “central”

- ✿ Self is a centrally organized theme in frontal cortex, which draws upon personal history and personal narrative; frontal lobe becomes aware of a threat
- ✿ Self exists in the immune system as a unique genetic code differentiating “me” from “not me”
- ✿ Self exists at the neurological level as a central representation in the brain, existing independent of stimulation for the physical or peripheral body
- ✿ What insults the mind may effect the body and vice versa
- ✿ The brain does not differentiate between mind and body

Somatosensory reorganization to isolate/dissociate pained area:

What do the fMRI studies show about CRPS?

- ✿ Neglect symptoms— patients dissociate from the injury Galer and Jensen, 1995
- ✿ Need to look at the limb to move it McCabe, 2005
- ✿ Limb feels foreign or strange Forderreuther et al, 2005
- ✿ Poor recognition of hand laterality when presented with limb pictures Mosely, 2006
- ✿ Cortical map altered in the injured limb Maihofner et al, 2004
- ✿ Non-painful stimuli are harder to notice as pain worsens Larbig, 2006
- ✿ Patterns of sensation seem altered Pleger et al, 2006

CRPS as a Centrally Generated Event (Massive distributive parallel processes)

- ✿ Frontal and prefrontal lobes
- ✿ Neurological, endocrine, immune systems
- ✿ Vagus nerve (bidirectional) involved, perceives proinflammatory cytokines and keeps the system activated (as in fibromyalgia) Maihofner et al, 2005
(It all goes off at once!)

Therefore, researchers suggest working with the CNS to relieve pain and reverse symptoms by revising the map of the body, using

- ✿ Mental exercises and Imagination Moseley, 2006 and Birklein & Maihofner, 2006

SUMMARY

Psychotherapy, particularly mind/body therapies such as hypnosis, can potentially interact via the CNS on its two-way streets

- ✿ Overall, the psychotherapy should aim to modify
 - ◆ physiology
 - ◆ psychological interpretation of pain
 - ◆ suffering leading (or not) to physical symptoms
 - ◆ memories that would lead to further somatic symptoms
 - ◆ Sponsors and trains behavioral and affect control
 - ◆ Self control skills are generalize over domains and time
 - ◆ Takes little training for highly hypnotizable patients, those in crisis, and previously traumatized patients
 - ◆ Seems to match the natural physiological healing response

REFERENCES

1. Beckmann J, Kock F, Grifta J, Borisch N. CRPS type I psychological origin – case report. *Z Rheumatol* 2005 Nov; 64(8): 581-585.
2. Berklein F, Maihofner C. Use your imagination: Training the brain and not the body to improve chronic pain and restore function. *Neurology* 2006; 67(12): 2115-2116.
3. DeJong JR, Vlaeyen JW, Onghena P, et al. Reduction of pain-related fear in complex regional pain syndrome type I: the application of graded exposure in vivo. *Pain* 2005; 116(3):264-275.
4. Egle UT, Hoffman SO. Psychosomatic aspects of reflex sympathetic dystrophy. In: Stanton-Hicks. M, Janig W and Boas RA, eds. *Reflex Sympathetic Dystrophy*. Lower Boston, MA. 29-36,1990.
5. Gainer MJ. Somatization of dissociated traumatic memories in a case of reflex sympathetic dystrophy. *Am J Clin Hypn* 1993; 36(2): 124-131.
6. Hardy MA, Merritt WH. Psychological evaluation and pain assessment in patients with Reflex Sympathetic Dystrophy. *J Hand Ther* 1988; 1:155-164.
7. Harden RN, Bruehl S, Stanton-Hicks M, Wilson PR. Proposed new diagnostic criteria for Complex Regional Pain Syndrome. *Pain Medicine* 2007; May-June, 8 (4): 326-331.
8. Hemler DE, McAuley RA, Belendres PV. Common clinical presentations among active duty personnel with traumatically induced reflex sympathetic dystrophy. *Mil Med* 1988; 153: 493-495
9. Hernandez JT. *Dialogues with Pain: Internal body conversations that resolve suffering*. Bethel, Conn: Crown House Publishing, in press.
10. Hernandez J. The use of self relations therapy in pain management. In: *Walking in two worlds: The self relations approach to change*. Gilligan S, Simon D (Eds.). Phoenix, AZ: Zeig, Tucker, Thieson, 2003.
11. King JH, NussS. Reflex sympathetic dystrophy treated by electroconvulsive therapy: Intractable pain, depression, and bilateral electrode ECT. *Pain* 1993;55:393-396.
12. Larbig W, Montoya P, Braun C, Birbaumer N. Abnormal reactivity of the primary somatosensory cortex during the experience of pain in complex regional pain syndrome: A magneto encephalographic case study. *Neurocase* 2006; 12(5): 280-285.
13. Maihofner C, Handwerker HO, Neundorfer B, Birklein F. Cortical reorganization during recovery from complex regional pain syndrome. *Neurology* 2004; 63(4): 693-701.
14. Maihofner C, Neundorfer B, Birklein F, Handwerker HO. Mislocalization of tactile stimulation in patients with complex regional pain syndrome. *J Neurol* 2006; 253(6):772-779.
15. Moseley GL. Why do people with CRPSI take longer to recognize their affected hand? *Neurology* 2004; 62: 2182-2216.
16. Pleger B, Ragert P, Schwenkreis P, et al. Patterns of cortical reorganization parallel impaired tactile discrimination and pain intensity in complex regional pain syndrome. *Neuroimage* 2006; 32(2):503-510.
17. Raus AL. Psychological aspects: A series of 104 posttraumatic cases of reflex sympathetic dystrophy. *Acta Orthopaedica Belgica* 1999; 65: 87-90.
18. Van Houdenhove BV, Vasquez G. Is there a relationship between reflex sympathetic dystrophy and helplessness? Case reports and a hypothesis. *Gen Hosp Psych* 1993; 5(5):325-329.