RSD PUZZLE #126
CRPS (RSD) and Pruritus

Many thanks for your most recent letter regarding persistent itching in a patient who is suffering from CRPS (RSD).

There are certain interesting features about this patient.

1. In regard to migrating pruritus, this condition points to the spread of sympathetic dysfunction to the other extremities. Please refer to RSD Puzzle #18, which discusses the spread of CRPS (RSD). It also has 15 different references regarding the spread of CRPS (RSD).

2. In regard to the relationship of inflammation, I would suggest that you tap the Med-line for references under CRPS (RSD) and Plasticity. It will provide you with priceless information regarding the relationship of CRPS (RSD) to inflammation. In 1995, there was an excellent article in the Journal of Clinical Neuropharmacology. This was in the form of a review of the subject of CRPS (RSD) by Dr. H. Ollat and Dr. P. Cesaro from Paris [1]. They have an excellent review of the principle of plasticity in CRPS (RSD). As you are well aware, the principle of plasticity refers to the fact that in any disease, when the condition becomes chronic, it affects the DNA of the cells that are supposed to repair damaged areas. The areas then become permanently affected. The genetic coding of the cells, be it nerve cells or white blood cells, becomes distorted. As a result, the patient's tissues will not have the plasticity to heal the damaged area. This is especially true in regard to the calcium magnesium pump, sodium potassium pump, and NMDA role in the cell membrane stability.

As you are well aware, the sympathetic system has three major functions.

1. Control of the body temperature.

2. Control of vital signs; B/P, pulse and respiration.

3. Regulation of the immune system.

In the first two years after the development of CRPS (RSD), the immune system is up regulated with high T cell lymphocytes causing low grade fever, neurodermatitis, trophic ulcers, spontaneous bruising, edema, clinical pictures of compression (entrapment), and neuropathies such as so-called carpal tunnel syndrome and thoracic ulcer syndrome, which can easily be corrected with conservative treatment rather than surgical treatment.

After two years, as the CRPS (RSD) becomes chronic and the healing power (plasticity) of the nervous system and immune system becomes disturbed, the patient develops hypoactive, down regulated immune system with development of permanent elevation of killer T cell lymphocytes, suppression of helper T cell lymphocytes, and development of persistent skin pathology, such as persistent edema involving the paraspinal and upper and lower extremities, persistent pruritus and neurodermatitis, persistent trophic ulcers, spontaneous bruising, permanent dystrophic changes in regard to skin healing, and abnormal hair and nail growth.

I will summarize the course of treatment, as follows:

1. Treatment with IV Mannitol (Please refer to the following RSD Puzzles111, 112,115 regarding I.V. Mannitol). It is old, from early 1970's, but they apply as much now as they did then. The principle is that one should not use extra-cellular diuretics for the edema of CRPS (RSD), because it only makes it worse by stimulating the sympathetic system with the stress of dehydration. Mannitol is an intra-cellular diuretic and, as such, gets rid of the edema and itching without stimulating the sympathetic system.

2. Treatment with ACTH. I have written a chapter on the subject of ACTH in my text book titled "Chronic Pain: Reflex Sympathetic Dystrophy - Prevention and Management" published by CRC Press in Boca Raton, FL. Prednisone and Decadron should not be used because the dermatologic conditions are chronic and the use of Prednisone or Decadron on a chronic basis causes serious complications such as adrenal atrophy, and other well known complications.

3. The use of epsom salt and warm water, or the use of magnesium sulfate enema or magnesium sulfate laxatives, all increase the extra-cellular magnesium level, and as such act as an effective calcium channel blocker reducing the inflammation in the dermal, and peripheral nervous system structures. An epsom salt bath is very effective in this condition. The opposite, and one of the most destructive ways of treating this condition, would be the application of ice. That only increases allodynia and raises constriction with aggravation of edema and itching.

4. The use of IV immunoglobulin in more severe and advanced cases is very effective.

5. For the symptomatic relief of the itching, treatment with two benzodiazepines which are non-addicting, and do not suppress the endobenzodiazepines, and help the problem of pruritus tremendously. These consist of:

I. Serax 50 mg q6h prn.

II. Klonopin 0.5 mg 1/2-1 tablet q6h prn.

Obviously, both benzodiazepines should not be used on the same patient.

6. One of the most important aspects of the treatment of the disturbance of the immune system with manifestations of pruritus, trophic ulcer, etc, is to detoxify the patient from medications that suppress cerebral endorphins and cerebral endo BZ's (endobenzodiazepines). The first group of these medications consists of morphine sulfate, MS Contin, methadone, Tylox, Codeine, Percodan, Percocet, Lortab, Demerol, and any other morphine agonist. These should be discontinued as fast as possible. They should be replaced with Buprenex, which the researchers at Harvard University state can be used to detoxify heroin, cocaine and morphine addicts within the first 24-48 hours [2]. If Buprenex is not practical, the other alternatives would be Stadol or Ultram, or alternating the two of them.

For the endo BZ agonist problem (the use of benzodiazepine that are addicting such as Xanax, Ativan, Valium, Restoril or Ambien), the patient can be treated with Serax or Klonopin, as mentioned above.

7. The last, but not least, form of treatment is treatment with analgesic type of anti-depressants which do not cause obesity (such as Elavil, which has a tendency to cause obesity and fatigue), and do not have other serious sexual side effects. These consist of two main medications:

I. Trazodone 50-300 mg qhs. Trazodone provides good REM sleep as well, which is very important for management of chronic pain.

II. Desipramine 25-75 mg qhs, which also provides excellent pain control and good rest and sleep at night.

8. Diet is also very important because certain foods such as chocolate, hot dogs, cold cuts and sausage aggravate the condition. (Please refer to the 4F-Diet)

I hope the above will be of some help to you.

H. Hooshmand, M.D.

References:

1. Ollat H, Cesaro P: Pharmacology of neuropathic pain. Clin Neuropharmacol 1995;18:391-404.

2. Ling E, Wesson DR, Charuvastra C, et al: A controlled trial comparing buprenorphine and methadone, maintenance in opioid dependence. Arch Gen Psychiatry 1996; 53:401-7.

RSD PUZZLE #127
CRPS and Vulvodynia

Many thanks for your letter and questions regarding CRPS and Vulvodynia.

Vulvodynia is the most intractable and most severe pain in medicine. In this condition the sympathetic system is the sole driving mode of the severe intractable pain. Because of the involvement of the genital organ, the disease involves the entire region. This is the reason for the new terminology calling RSD "complex regional pain syndrome-CRPS."

The involvement of the pelvic area with the sympathetic dysfunction is manifested by the following features.

Spread of pain to the abdominal region, lumbar spine, and lower extremities as well as spread of the pain upward through the chain of sympathetic ganglia to the cervical spine regions causing severe headache, neck pain, dizziness, blurring of vision, insomnia, and depression.

Your sister's condition has become much worse because of the biopsy performance. It should never be repeated. Her condition was severe enough and the trauma of a biopsy aggravated it further. Please make sure that in the future they will not perform any kind of surgical procedure on her. Otherwise, her immune system will further fall apart and she will have a much shorter life expectancy. As you are well aware, the sympathetic system has three main functions, i.e., control of temperature, control of vital signs, and modulation of the immune system. In vulvodynia, the immune system becomes rapidly dysfunctional.

One of the reasons for the immune system becoming rapidly dysfunctional is the fact that the spread of the pain, inflammation, and poor circulation to the pelvic abdominal regions causes neuroinflammation of the ovaries, disruption of the Estrogen secretion, and causes interstitial cystitis in the form of frequency and urgency of urination and even incontinence of urine.

Obviously, they have worked the patient up for other kinds of immune system dysfunctions and they have found none. So, it becomes obvious that the only reason for her immune system disturbance is the CRPS-vulvodynia.

You have mentioned that there is "no documentation of RSD in the GU/GI systems." There is plenty of evidence in this regard. As a matter of fact, the International Association for the Study of Pain calls interstitial cystitis as a form of RSD.

The treatment should consist of epsom salt baths which are very effective, but the amount of epsom salt added to the bath should be started as a small amount and gradually increased. Any treatment should not aggravate the pain, so every form of treatment should take into consideration the severe hypersensitivity, hyperpathia, and allodynia that such poor patients have.

In addition, there are specific types of nerve blocks that can be given that calm down the neuroinflammation of vulvodynia-CRPS. These consist of caudal nerve blocks, for the sensory nerves, as well as nerve blocks for the sensory nerves of the genitalia. Obviously, the needle should not be stuck in the vaginal region, but it should be applied proximally.

The patient also needs to have IV Immunoglobulin treatment to prevent further deterioration of the immune system.

Most important, is that the patient needs to have proper pain relief. This is achieved by opioid antagonists such as Buprenex, Nubain, or Butorphanol. The use of opioid agonists should not be used because of the fact that they cause a problem with rebound (withdrawal) phenomenon, and the strong opioid agonists such as Fentanyl or Methadone or Morphine do not reduce the pain any more than from 10 down to 7-8 which is not much of a relief. In addition, the use of opioid agonists causes a withdrawal pain which keeps the patient awake all night.

The patient needs to be treated with antidepressants and anticonvulsants, but not with Elavil (Amitriptyline) which causes systemic side effects and makes the patient gain 7-16 pounds of weight a year. The anticonvulsants should not be limited to Neurontin which is only good for burning pain, but other types that are more effective should be used.

Obviously, the patient does not need any sympathetic ganglion nerve blocks. The fact that she has erythematous (reddish discoloration and heat emission) areas over the vulvar region, points to sympathetic dysfunction and sympathetically independent pain (SIP), so any sympathetic ganglion block is too late to do any good for the patient and will be more destructive than good.

Other blocks such as lumbar epidural blocks and caudal blocks are far more effective, and specifically they are different from the lumbar ganglion blocks or pelvic ganglion blocks because they contain Depo Medrol as an anti-inflammatory medication that provides pain relief for 2½-3 months rather than the sympathetic ganglion blocks providing pain relief for a few hours or a day, if that.

H. Hooshmand, M.D.

RSD PUZZLE # 128
Sporadic Changes in CRPS/RSD

Question:

Dear Dr. Hooshmand,

I am told that I have RSD, but at times my doctor does not think that I have RSD because the swelling and color changes are not always present when he examines me. He keeps giving me Elavil which makes my condition worse. Can RSD cause severe spasms of muscles?

Thank you

Ms. R

Answer:

Dear Ms. R,

Many thanks for your e-mail letter regarding your RSD.

1. The swelling and changes in CRPS/RSD are always intermittent and sporadic. Trigger point injections are not enough. You need epidural blocks and plexus nerve blocks (such as brachial plexus blocks).

2. Severe spasm and jerking movement of the extremities are very common in CRPS/RSD. The treatment of choice for these is Klonopin (Brand name, which I believe in Canada is called Rivotril).

3. MS Contin and MSIR are effective for cancer pain patients, but don't relieve the neuropathic pain of CRPS (RSD).

4. The ideal analgesic anticonvulsants are:

a. Trazodone

b. Desipramine

c. Doxepin

H. Hooshmand, M.D.

RSD PUZZLE # 129
CRPS (RSD) and Disc Protrusions

Question:

Dear Dr. Hooshmand,

I have been diagnosed with having full body CRPS II. I also have a small to moderate size central herniation of T7-8 minimally indenting the cord, and I have also had a neck fusion at C5-6 and C3-4 protruding outward and mild facet arthritis at L4-5.

Answer:

Dear Ms. B,

The new name for RSD is CRPS, referring to the fact that the complex regional pain syndrome affects the entire region from hand or foot all the way to the spinal cord and spine causing inflammation and at times disc protrusions.

Undergoing surgery would be absolutely lunatic because surgery causes more inflammation and more bulging of the adjacent discs.

If surgery is done, then the adjacent vertebrae surrounding the removed disc undergo osteonecrosis. The term osteonecrosis refers to the meltdown of the bone. Many times the complications of osteonecrosis cause the patient to end up in a wheelchair because of an unstable spine.

The treatment of choice is epidural nerve blocks, I.V. Mannitol treatment, or treatment with Bumex.

Surgery is out of the question. Surgery on the disc herniation at the thoracic spine region, even in the absence of CRPS, has a very low percentage of success and can cause serious complications.

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE #130
Eye Complications In CRPS
(Please view Puzzle #24)

Question:

Dear Dr. Hooshmand,

Over t he last year I have developed watering eyes and my left eye turns outwards with double vision. Can this problem be related to my CRPS/RSD?

Answer:

Dear S.J.,

Many thanks for your e-mail letter. You suffer from 2 well-known complications of CRPS.

1. Keratitis Sicca which is due to CRPS at early stage causing pain and irritation in the eye with secondary excessive secretion tears. As the condition becomes chronic, the tear glands become exhausted, causing "dry eye" (Keratitis Sicca). You need to use artificial tears every 2-3 hours while you are awake. Also, halfway during the sleep hours (approximately 3 hours after you are asleep), you should set the alarm clock to treat the eyes with artificial tears in liquid or viscous form.

2. You described deviation of the left eye sideways as well as double vision, and poor equilibrium. These are typical signs of poor circulation to the brain stem causing disturbance of focusing, and partial paresis of the eyes, and poor balance and falling attacks.

Treatment for the above consists of cervical epidural blocks containing Depo-Medrol®, cervical paravertebral blocks followed by cervical massage to neutralize and to disseminate the irritative chemicals, e.g., substance P (pain substance which is identical to the chemical irritant Capsaicin), CGRP, and nitric oxide to peripheral blood circulation, and eventual excretion of these chemicals. Otherwise, you are at the risk of developing a major stroke.

With many thanks,

H. Hooshmand, M.D.

RSD PUZZLE #131
Destructive lesion cause more pain and aggravation of CRPS

Dear MG.,

Thanks for the 3 questions that you e-mailed to me. The answer is a strong no to all 3 questions.

1. SCS has quite a high risk of aggravation of pain, and spread of the disease to other parts of the body. If it is not helping your pain, it should be removed because it acts as a foreign body. As such, it stimulates and aggravates the CRPS.

2. In regards to Capsaicin experiment, it is not a good idea for you to become a so called "Guinea Pig". Capsaicin, the extract of jalapeno pepper, is a strong chemical irritant identical to substance P (pain substance). It is a major aggravator of pain and inflammation in CRPS patients. The reason it has been used for treatment of pain, is because it destroys the sensory nerves in the skin, causing temporary sensory loss followed by recurrence and spread of neuropathic pain of CRPS. In the long run, it does the same damage as ice application; they both destroy sensory nerves, causing spread of pain and CRPS.

3. Cryogenic surgery (Cryosurgery), which means freezing an organ in the body, is similar to radiofrequency surgery, which means destroying nerve fibres at boiling hot temperature.

We have yet to see even one patient who had pain relief in the long run after such destructive (ablative) surgical procedures. These surgical treatments provide a few days or weeks of pain relief because of permanent damage to nerves. After a few weeks, the surrounding partially damaged nerves start getting caught in the dead tissues, causing more severe pain than the original injuries.

With many thanks,

H. Hooshmand, M.D.

RSD PUZZLE #132
Is Stereotactic Surgery helpful for CRPS?

I was looking for information on a new surgery being done in California. Some kind of brain surgery to remove the portion that sends pain signals. I am not certain if I described it correctly or not. I was informed that 20/20 had a show on last week with breakthroughs in RSD with this kind of surgery. I have e-mailed 20/20 I have not heard anything as of yet. Thank you for your time, if you have any information on this procedure, or who was offering it, please let me know.

Thank you again

We were doing this type of surgery 40 years ago at the Mayo Clinic when I was studying there.

It only works for a few weeks or months, and the pain comes back with a vengeance due to additional trauma of surgery.

This type of surgery is only indicated in cancer patients suffering from severe pain who only have a few weeks or months to live.

This is in contrast to CRPS patients who have an average life expectancy of 30 to 40 more years.

That means after surgery they will have to put up with the additional pain for 30 to 40 years.

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE #133
CRPS and Headaches

Dear Dr. Hooshmand,

I have increasingly worse headaches. They are totally disabling and have been diagnosed as migraines since the new migraine medicines Maxalt and Imitrex (not Zomig) help. I also occasionally get some relief when I eat, but I eat VERY often (small portions--like the 4-Fs diet) and don't know what else to do to steady my blood sugar. The Maxalt only HELPS some and only sometimes. I have a headache 24 hours / 7 days a week. I also have developed a couple of lumps on my head. The neurologist here said everybody has lumps on their heads and I know that but these are new and hurt when I press on them. He did a skull X-ray that came out negative. Could it have to do with the RSD? I feel like I'm going to go crazy if I have to deal with this pain anymore. Do you have any suggestions?

Thank you.

First of all, Imitrex and Maxalt do not help this type of headache. It is not a true migraine. The two migraine medications constrict your blood vessels and aggravate your CRPS.

The headache you have is called occipital neuralgia which can mimic migraine but does not respond to migraine medications.

You need occipital nerve blocks. If you can convince a doctor to do them, I will be glad to give them the information.

The lumps on your head are a sign of neuroinflammation due to CRPS and secondary occipital neuralgia.

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE #134
The Use of Epsom Salt

Question:

Dear Dr. Hooshmand,

Does the magnesium in the Epsom Salt actually enter into the skin during soaking?

Answer:

Yes, the magnesium enters into the body profusely and acts as a calcium channel blocker. The calcium channel blocker effect of the magnesium prevents stroke, heart attack, and stops the constant epileptic seizures that kills pregnant women suffering from eclampsia. Such patients do not respond to large doses of Anticonvulsants and die from seizures unless they are given Epsom Salt rectally.

Epsom salt soaking helps the patient by acting as an osmotic agent, extracting the poisonous and irritative chemicals from the involved extremity through the skin. In addition, the magnesium in itself acts as a calcium channel blocker which helps reduce the pain, inflammation, edema and breakdown of tissues.

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE #135
Treatment of Frozen Shoulder

Question:

Dear Dr. Hooshmand,

My husband has been suffering from a Frozen Shoulder since December of last year. Could you please tell us what type of treatment can help my husband with his Frozen Shoulder pain?

Answer:

Dear D.G.,

Many thanks for your e-mail. First of all in regards to Frozen Shoulder, there are four different types of treatments applied to patients.

1. Trigger point injections with local anesthesia, but with no Depo-Medrol®, the relief only last for 2-3 days.

2. Manipulation of shoulder under general anesthesia which is cruel and destructive to the shoulder. This procedure only pleases the doctor who does the manipulation and does not have to listen to the patient screaming with pain during the manipulation.

3. Surgery which causes new scar leading to a new source of aggravation of pain and immobilization of the shoulder.

4. Multiple trigger point injections with local aesthetic and minuscule doses of Depo-Medrol® (1 ½ - 2 ½ mg). This treatment should be given to areas of severe irritation and bursitis. Its success depends on how thoroughly the areas of trigger point irritation are neutralized with trigger point injection. One or two will not do the job. It usually takes 8-12 neutralizing injections to regain full motion of the shoulder. The patient is instructed to rotate the arm and shoulder at least 70 to 80 times a day in an intermittent fashion.

In regards to a prognosis, we have had a success rate of over 80% in compliant patients, the rest of patients, due to inactivity and not following exercise instructions end up having a recurrence of Frozen Shoulder.

The spouse or relatives are supposed to stay on top of the patient to make sure they do as many rotations a day as possible.

At the end of the complete course the patient should have no trigger point irritation and no pain by rotating the shoulder; otherwise the trigger point injection is incomplete.

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE # 136
Facet Blocks (Prolotherapy) vs. other Blocks

Question:

Dear Dr. Hooshmand,

I couldn't find any information about a facet injection with Medrol. After three epidural blocks with Medrol, he now wants to try facets. Since you do not have a puzzle on facet joint injection, maybe you could write one?

Dear Debbie,

Epidural blocks with Depo- Medrol® do a very good job of managing the pain. They should be complimented by paravertebral blocks which are far safer than facet joint blocks.

In facet joint blocks the needle is inserted to the joint and causes trauma to a perfectly normal joint causing a new source of scar formation and sensory nerve damage.

The paravertebral nerve blocks are identical to facet joint blocks with two main differences:

1. The needle stops short of invading the joint. The injection helps calm down the nerves in the area of nerve irritation without causing a new source of pain (joint injury).

2. Usually chemicals such as hypertonic glucose and other chemical irritants (such as phenol) are injected at the articular facet area for prolotherapy; causing de novo permanent damage to the joint and the nerves in that area.

This is in contrast to paravertebral nerve blocks which contain local anesthetic and Depo- Medrol® as anti-inflammatory medication, not strong chemicals mentioned above.

Neuropathic pain originates from nerves in the wall of microscopic blood vessels, not from joints.

Invasion of the joint becomes a new source of pain.

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE # 137
The climate and it's effect on CRPS (RSD)

Question:

Is it true that in CRPS the colder climates have an adverse effect on CRPS patients and the patients who live in Florida have a nearly 100% remission/cure rate?

Answer:

It is true that the cold climate, such as in Nova Scotia, is a strong aggravator of CRPS. This should not be equated with people in Florida miraculously getting better because of the climate. What determines the course of improvement or deterioration of CRPS is the nature of the treatment.

The patient can be in absolute paradise, yet unnecessary surgery, which is commonly performed, will rapidly deteriorate the patient's CRPS. An example is radio frequency lesions which cook the nerves at boiling water temperature causing extensive and irreparable damage.

By contrast the patient may be in a very cold climate yet protecting themselves from the cold, having noninvasive treatments and rapidly recovering from the disease. In regards to improper treatments, one should add a combination of large doses of methadone, duragesic etc . . . to the list of improper treatments for CRPS. Another improper treatment is hospitalizing the patient and not allowing the patient to get out of bed because the patient is in pain. Inactivity is by far the worse aggravator of the disease.

Approximately one-tenth of the CRPS patients cannot tolerate heat because of the severe permanent damage to their sympathetic nervous system leaving them unprotected against heat. These people should not move to a colder climate either because their entire thermoregulation is dysfunctional.

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE #138
Electrical Injury and Sympathetic Dysfunction

In electrical injury patients at least 30% also suffer from severe sympathetic dysfunction.

A high percentage of electrical injury patients (over 40%) develop subcortical seizures which cannot be recorded with standard EEG recording on scalp. Some of these seizures are due to brain stem dysfunction because of electrical current damage. Most originate from spinal cord, resulting in so called myelogenic seizures.

The tests that show such abnormalities in such patients are BAER for brain stem and STEP for spinal cord recordings.

Regardless, the patient needs to be treated as soon as possible before further damages occur. Treatments of choice are Klonopin (non-generic) in doses of 4 to 12 mg and the dosage adjusted not to cause severe drowsiness. Non-generic Tegretol is also effective but can cause complications in 2% of patients. On the other hand, Trileptal 150 mg, twice a day usually is excellent for the kind of seizures your husband suffers from. Generic Clonazepam is poorly tolerated. It has a tendency to cause allergic reactions and be ineffective for treatment of seizures. Consult your attending physician on these matters.

The circulatory problems he has are due to bouts of sudden sympathetic system dysfunction involving spinal cord (called spinal cord sensitization) resulting in myoclonic seizures. For these seizures the patient also needs to take alpha blockers such as Hytrin and also to receive epidural nerve blocks containing Depo-Medrol®.

This disease has a poor prognosis unless it is treated aggressively.

H. Hooshmand, M.D.

RSD PUZZLE # 139
RSD and Neuropathy

Question:

I have been told I have neuropathy and I have RSD. Is the Neuropathy a result of the RSD?

Answer:

There are two types of neuropathies:

One is the neuropathy involving large myelinated nerves such as seen with diabetes or nutritional neuropathy (e.g. alcohol neuropathy).

The second type is neuropathy seen in neuropathic pain such as RSD (CRPS). This involves microscopic nerves in wall of blood vessels causing poor circulation, etc . . .

It is not at all unusual to see the two types of neuropathy present in the same patient. As such, both diseases should be treated at the same time.

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE #140
The Benefits and Side Effects of Infusion Pump

The philosophy regarding infusion pumps is as follows:

The infusion pump provides a steady flow of Morphine or Dilaudid into the spinal fluid to help manage the severe chronic pain, which has not responded to the standard treatments. The infusion pump is only effective if the patient limits the intake of pain medications to only through the pump administering medication in the spinal fluid.

Because the Morphine or Dilaudid has a higher specific gravity than the spinal fluid, the infusion of such medications (definitely not together) into the spinal fluid provides mainly pain relief in the lumbar spine and lower extremities. This is because when the patient sits up or stands up the pain medication precipitates in the lowest part of the lumbosacral cannel. So, the infusion pump is most effective for injuries from the waist down. Such conditions as severe knee injury, lumbar spine injury, arachnoiditis, failed back syndrome, CRPS (RSD) in the lower extremities, all have the potential of having better than 80% pain relief.

Such pain relief cannot be achieved unless the following precautions are applied:

1. The therapeutic dosage of Morphine in the spinal fluid is anywhere from 3.5mg up to 15.5mg. The therapeutic dosage of Dilaudid is anywhere from 2.6mg up to 8.5mg. If either of these medications is even in a very small amount below the lower limit of therapeutic dosage or above the highest limits of a therapeutic dosage, then the patient will have severe pain. The reason the higher dosage of narcotics causes such severe pain is because of the fact that Morphine or Dilaudid has the tendency to saturate the three endorphin opioid receptors. These are: mu, kappa, and theta receptors. The kappa receptor is the largest of the three. If these medications mentioned above are given in the therapeutic dose, then there is still room for the kappa receptor to receive endorphin secreted in the central nervous system. On the other hand, if the above therapeutic dosages of narcotics are applied, then all the three receptors will be flooded with narcotic and the patient will have severe tolerance and withdrawal pain because of the lack of secretion of the endorphin. The central nervous system is not going to produce and secrete endorphin if the patient is already on large and supratherapeutic doses of such medications.

The rate of success of the insertion of the infusion pump at the beginning is no more than 80%. With the passage of time, because the patient and doctor become impatient, and apply narcotics through other routes, then the rate of success drops to less than 40%.

Because the doctors have a tendency to be extremely generous and treat the patient with multiple narcotics such as Duragesic, applied simultaneously with MS Contin, Oxycontin, Methadone, Morphine, etc. the patient not only is in danger of overdose and respiratory arrest, but also the patient will have more severe pain than if he was not on the pump. This is the main reason we see more and more of the pumps being turned off because of the problems mentioned above.

It takes at least 4-6 months to get the pump installed and going.

Even after making sure that the dosage of medication is no sub- or supratherapuetic, still it is important to watch out for other side effects of the narcotics in the spinal fluid. The commonest side effect is a marked edema in the extremities, especially in the lower extremities. This edema is due to suppression of endogenous estrogen in women and endogenous testosterone in men. So, the treatment should be supplemented by providing enough estrogen or enough testosterone to prevent the edema.

Another main reason for failure of the pump is the fact that the patients don't understand the importance of being very selective and conservative in regards to the pain medications, and as a result while the pump is being tested, installed, and the medication is being gradually increased in dosage, the patient sneaks another narcotic from any of the relatives, friends, etc. Once the patient starts taking the new narcotic medication, then the pump completely fails.

Finally, there is another serious problem with the pump in that there have been more tendencies for under supplying the pump with pain medication rather than oversupplying it. We have seen patients who have been tried on 1mg or 2mg Morphine or Dilaudid for several months, sometimes more than a year, with no relief of pain only because the medication has not been raised up to the therapeutic range.

If the doctor in charge of the pump is meticulous, careful, and selective, and if he does not add other types of narcotics, then the results for pain in the lumbosacral regions and lower extremities are excellent.

If the pain is originating from the central nervous system, or from the cervico-thoracic regions, not much can be expected in regard to benefit of the pump for pain relief.

H. Hooshmand, M.D.

RSD PUZZLE #141
Full Term Pregnancy and RSD

Many thanks for your e-mail regarding RSD and Pregnancy.

We usually encourage carrying to full term, unless the pelvis is very small, as a C-section will make the RSD worse. Normal delivery is fine with RSD, as long as the mother takes minimum amounts of morphine and cuts down or excludes other medication, as they can cause fetal deformities. Specifically, such medications as Methadone or Fentanyl are very harmful.

As you go into later stages of pregnancy the baby will provide all the hormones the mother needs such as, endorphines for pain, estrogen, growth hormones, etc... So the mother will normally get significant improvement with the signs and symptoms of RSD. However, after delivery the patient is deprived of all these hormones and the pain will return.

With many thanks,

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE #142
Surgical Treatment in CRPS/RSD

Many thanks for your e-mail of 09/09/01.

First of all, my advice to you is to remind your doctors that CRPS/RSD is not a surgical disease. With very rare exceptions, surgery invariably aggravates the CRPS/RSD. The reason is the fact that RSD usually starts from a minor injury, which has been unexpected and the injury affects the sympathetic sensory nerves in the wall of the microcirculation (arterioles and venules). It does not make sense to perform carpal tunnel surgery just because the patient complains of pain in the hand. If the "no surgery" principle had been followed, you would not have ended up going through the torture of surgery for the so-called carpal tunnel syndrome.

The radiofrequency sympathectomy is far more dangerous than carpal tunnel surgery. The reason is because the radiofrequency procedure works on the basis of the fact that the radiofrequency equipment raises the temperature of the target area in the body up to boiling water temperature (100°C). So, the boiling hot temperature is going to do nothing but indiscriminately destroy every nerve fiber in its path.

Each unnecessary surgical procedure augments and increases the damages caused by the destructive surgical procedure.

On the other hand, the least invasive procedures are epidural nerve block, which is done in the cervical or lumbar epidural space with the help of a mixture of Marcaine and Depo- Medrol®. This method calms down the system, and calms down the rouge and dysfunctional nature of the damage of the sympathetic sensory nerves, and as a result improves the patient's condition. This is the opposite of stellate ganglion operation, which destroys the normal sympathetic nerves by repeatedly inserting needles into the stellate ganglion. The CRPS/RSD should be treated in a multidisciplinary fashion with the help of proper analgesic antidepressants such as Trazodone or Doxepin, and with specific anticonvulsants such as Trileptal or the alternative Tegretol, or Klonopin, which helps control the myoclonic jerks seen in CRPS patients.

On the subject of spinal stimulators, this operation is vogue and a lot of patients are exposed to it. Unfortunately, the over two years follow up of the spinal stimulator treatment shows quite a low percentage of pain relief, as well as aggravation of the pain and spread of the disease to other parts of the body.

The infusion pump treatment would be a last resort, but unfortunately the success rate of it is quite low. If the patient is weaned off other narcotics, and if the patient's pain medication is limited to proper analgesic antidepressants and anticonvulsants (e.g., Topamax or Neurontin) by mouth, as well as therapeutic,

minimal doses of Morphine or Dilaudid (5-15mg Morphine in the spinal fluid a day, or 3-8½ mg Dilaudid in the spinal fluid a day), then the patient will have very good results from this treatment. Up until 5 years ago, we had done over 130 infusion pump treatments as outlined above, but in the past 5 years, the infusion pump treatments have been unsuccessful because unfortunately the pain doctors not only instill large doses of Morphine or Dilaudid (way over 25-30mg of each one of the above medications in different patients), but also provide all the oral narcotics that the patient can take. Obviously, such a flooding of the system with strong narcotics is going to result in rebound (withdrawal) and tolerance (demand for more pain medication) phenomena and across the board the pump will be a failure. Way over $100,000 is spent on it, but after a few months the pump has to be turned off or removed because the patient is much worse.

There are many other forms of effective treatment for CRPS other than surgery or invasive procedures such as spinal cord stimulator, radiofrequency, or infusion pump.

Finally, we have to clarify that CRPS patients are usually young, and should not be treated as if they are suffering from cancer and going to die in a matter of a few months. The CRPS patients usually are female, and they usually have a life expectancy of another four decades ahead of them.

With many thanks,

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE #143
Radiofrequency (RF)

Question:

Dear Dr. Hooshmand:

I have undergone an EMG and MRI which shows no RSD. In addition, my Doctor wants to do Radiofrequency. What should I do?

Answer:

Unfortunately, they have complicated your case by doing tests such as MRI and EMG which never show any evidence of RSD (MRI is a gross anatomical test showing disk herniation, tumor, bleeding, - but it cannot be sensitive enough to show microscopic abnormalities in the sympathetic sensory nerves in the wall of blood vessels. The same is true in regard to EMG). Please do not allow anyone to stick EMG needles in you as it only aggravates the condition.

RSD (CRPS) is not a surgical disease. The trauma of surgery only aggravates the condition.

The most traumatic of all invasive treatments is Radiofrequency nerve ablation and block. It is done with a heat generating Radiofrequency electrode causing a boiling hot temperature at the target area which coagulates, destroys and kills the nerve fibers and nerve cells.

Because the Radiofrequency damage causes high temperature in the adjacent areas of the target, it also destroys the adjacent normal nerves causing a much larger lesion and scar formation with spread and aggravation of pain in a permanent fashion.

In RSD (CRPS) the sympathetic system is dysfunctional rather than simply being hyperactive. The longer the disease is left untreated and the more surgical scars, the more dysfunctional the sympathetic system becomes. This is the reason for practically 100% failure of treating RSD with sympathectomy, Radiofrequency nerve destruction and chemical blocks with alcohol, phenol, etc.

With many thanks,

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE #144
Excessive Itching and Neuropathic Pain with Dysesthesia (e.g., pins and needles) in CRPS

This type of pain is not at all uncommon in relatively advanced CRPS patients. Two different factors contribute to this pain:

1. Allodynia, which refers to the fact that the more the area is painful, the less tendency by the patient to touch that area. Lack of touch and massage to the affected area causes more sensitization of the spinal cord and aggravates the pain.

2. Neuro-inflammation, which usually develops after the patient has had this problem for several months or even years. This is due to the fact that sensitization of the spinal cord allows more and more pain input to the central nervous system, resulting in stimulation of the sympathetic system mobilizing the immune system to counteract the itching and neurodermatitis secondary to CRPS/RSD.

The sympathetic system has three main functions as follows:

a. Modulation of the body temperature.

b. Modulation of vital signs, blood pressure, pulse, and respiration.

c. Modulation of immune system. The immune system problem causes neuro-inflammation, which is by far the most disabling manifestation of CRPS/RSD.

TREATMENT

1. The treatment of choice for this condition is soaking in the bathtub with Epsom salt added to the water, which acts as a calcium channel blocker and calms down the neuro-inflammation.

2. The use of surface analgesic creams, especially Zonalon, or Emla Cream to the involved areas.

3. Avoidance of any kind of inactivity, any braces, any wheelchair, or cane, etc., if at possible, because inactivity causes more and more inflammatory reaction. The inactivity causes cold surface of the extremity, but the same blood circulation to the extremity is directed to the deep structures causing osteopenia even fracture of the bone, aggravating the pain tremendously.

4. It is too late for stellate ganglion or lumbar sympathetic ganglion block to do anything for this advanced condition. The patient would benefit from treatments with cervical or lumbar epidural nerve blocks, depending on which part of the body is involved. These blocks should contain not only local anesthetic Marcaine 0.25%, but also Depo- Medrol® in small amounts (no more than 15-20mg at a time). The epidural block provides marked improvement lasting for at least 2-4 months. This is in contrast to sympathetic ganglion blocks that don't last any more than a few hours or days.

5. Other helpful treatments are hydrotherapy, swimming and exercising in a warm heated pool, and most importantly, treatment with analgesic antidepressants such as Trazodone, which prevents the pain to begin with.

Sincerely,

H. Hooshmand, M.D.

RSD PUZZLE #145

Hot and Cold Challenge in the Treatment of Early Stages of RSD/CRPS

1. When the skin is cold and blue, it points to mark vasoconstriction. In this situation, in early stages of the disease, the vasoconstriction gets worse with exposure to cold (be it ice or cold water).

2. In contrast, when the extremity is warm, it is the sign of damage to the thermoreceptors causing leakage of the heat from deeper structures. Such patients usually cannot tolerate heat; this is because of damage to vasoconstrictors allowing the heat entering the body, and makes the condition worse.

3. If ice and hot water are applied to the injured area, then neurovascular instability aggravates the condition, causing blotching and unstable thermoregulation.

4. All in all, it is not worth challenging the damaged area with such treatments.

H. Hooshmand, M.D.

RSD PUZZLE #146
Allergic Reactions and CRPS/RSD

QUESTION:

Dear Dr. Hooshmand,

I have developed allergic reactions since the injury that caused my CRPS/RSD. Since then I have developed severe asthma which I did not have before developing CRPS/RSD. Is there a relation?

ANSWER:

The sympathetic nervous system has three main functions:

1. Control of body temperature.

2. Control of vital signs (blood pressure, pulse, and respiration).

3. Modulation of the immune system.

Usually, a year to 2 years after onset of the disease, the immune system becomes dysfunctional. The patient develops skin rash, de novo allergies, asthma, even severe coughing and bleeding from the lung and bronchi. Treatments consist of epidural blocks, proper analgesic, (but not opioid agonists such as MS Contin, Oxycontin, etc). Treatment with effective, analgesic antidepressants (especially Trazodone), and analgesic anticonvulsants such as Trileptal (for stabbing pain), and/or Neurontin (only for burning pain) are quite helpful.

In late stages, treatment with I.V. Immunoglobulin may be the last hope for the patient.

Sincerely,

H. Hooshmand, M.D.