Fifth Disease SCIO Treatment

Overview

Fifth disease is a mild rash illness caused by parvovirus B19. This disease is also called erythema infectiosum. It is more common in children than adults. A person usually gets sick within 4 to 14 days (sometimes up to 20 days) after getting infected with parvovirus B19. About 20% of children and adults who get infected with this virus will not have any symptoms.

Arthritis is a complex family of musculoskeletal disorders consisting of more than 100 different diseases or conditions that destroy joints, bones, muscles, cartilage and other connective tissues, hampering or halting physical movement. Fifth disease, also called erythema infectiosum, is a mild viral illness that most commonly affects children. It is called fifth disease because it is the fifth of the five viral rash diseases of childhood (the other four being measles, rubella, chicken pox, and roseola). A child with the disease may have mild cold or flu-like symptoms followed a few days later by a red rash on the cheeks, torso and limbs. Some children with fifth disease may develop joint pain and swelling, but those symptoms don’t last for long.

Adults can also become infected with the virus and develop fifth disease. Adults tend to have a more severe flu-like illness, but seldom develop the rash. Adults with the disease are much more likely than children to develop joint symptoms. These symptoms usually clear up within two weeks, but as many as 10 percent of adults who develop joint pain will have prolonged, sometimes chronic, symptoms.

What are the effects?

Several days after being infected with the virus (usually four to 14 days), a child may develop cold or flu-like symptoms, such as low-grade fever, fatigue and an overall feeling of ill health. After a few days, the child may develop a rash on his face that looks as though his cheeks have been slapped (a “slapped-cheek” rash) as well as a lacy red rash on the torso and limbs. The rash may be itchy, but not in all cases. The rash will resolve in seven to 10 days. About 10 percent of children with fifth disease will also have joint pain and possibly joint swelling.

Adults who are infected usually will have more severe flu-like symptoms, but may not develop the characteristic “slapped-cheek” rash. However, as many as 78 percent of symptomatic adults will develop joint pain and swelling one to three weeks following the initial infection. Joints of the hands, wrists and knees are most commonly affected in a symmetric pattern. Joint symptoms usually resolve in a week or two, but approximately 10 percent of adults with joint symptoms will have prolonged difficulties. Chronic joint pain has been known to last up to nine years.

Signs & Symptoms

The first symptoms of fifth disease are usually mild and nonspecific. The first symptoms of fifth disease are usually

- fever,
- runny nose, and
- headache.
Erythema infectiosum (fifth disease)
The erythema, or rash, first appears on the cheeks, forming a characteristic pattern.

Measles, rubella, scarlet fever, the other one... and the fifth one

Fifth Disease

The name “fifth disease” is historic. This infection was counted among the five classical rash-associated infections of childhood. The other four were measles, scarlet fever, rubella (German measles), and a rash-producing infection that’s unknown to doctors today and is simply referred to as “fourth disease.”
Quick Fact
Fifth disease got its name because it was fifth in a list of historical classifications of common skin rash illnesses in children.

Then, you can get a rash on your face and body
After several days, you may get a red rash on your face. This is called "slapped cheek" rash. This rash is the most recognized feature of fifth disease. It is more common in children than adults. Some people may get a second rash a few days later on their chest, back, buttocks, or arms and legs. The rash may be itchy, especially on the soles of the feet. The rash can vary in intensity and may come and go for several weeks. It usually goes away in 7 to 10 days, but it can last several weeks. As the rash starts to go away, it may look lacy.

You may also have painful or swollen joints
People with fifth disease can also develop pain and swelling in their joints (polyarthritis syndrome). This is more common in adults, especially women. Some adults with fifth disease may only have painful joints, usually in the hands, feet, or knees, but no other symptoms. The joint pain

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usually lasts 1 to 3 weeks, but it can last for months or longer. It usually goes away without any long-term problems.

Transmission

People with fifth disease are most contagious before they get rash or joint pain and swelling. Parvovirus B19 spreads through respiratory secretions (such as saliva, sputum, or nasal mucus) when an infected person coughs or sneezes. You are most contagious when it seems like you have "just a cold" and before you get the rash or joint pain and swelling. After you get the rash, you are probably not contagious. So, it is usually safe for you to go back to work or for your child to go back to school or a child care center.

The contagious period for fifth disease is different from many other rash illnesses. For example, people with measles can spread the measles virus when they have the rash. However, people with fifth disease who weakened immune systems may be contagious for a longer amount of time.

Parvovirus B19 can also spread through blood or blood products. A pregnant woman who is infected with parvovirus B19 can pass the virus to her baby.

Diagnosis

Healthcare providers can often diagnose fifth disease just by seeing "slapped cheek" rash on a patient’s face. A blood test can also be done to determine if you are susceptible or immune to parvovirus B19 infection or if you were recently infected.

Once you recover from fifth disease, you develop immunity that generally protects you from parvovirus B19 infection in the future.

Prevention & Treatment

Prevention

People with fifth disease are most contagious when it seems like they have "just a cold" and before they get the rash or joint pain and swelling.

You can reduce your chance of being infected with parvovirus B19 or infecting others by

- washing your hands often with soap and water
- covering your mouth and nose when you cough or sneeze
• not touching your eyes, nose, or mouth
• avoiding close contact with people who are sick
• staying home when you are sick

After you get the rash, you are probably not contagious. So, it is usually safe for you to go back to work or for your child to return to school or a child care center.

Healthcare providers who are pregnant should know about potential risks to their baby and discuss this with their doctor.

All healthcare providers and patients should follow strict infection control practices to prevent parvovirus B19 from spreading.

For information about hand washing, see CDC's Clean Hands Save Lives!

Treatment
Fifth disease is usually mild and will go away on its own. Children and adults who are otherwise healthy usually recover completely.

Treatment usually involves relieving symptoms, such as fever, itching, and joint pain and swelling.

People who have complications from fifth disease should see their healthcare provider for medical treatment.

There is only homeopathic vaccine or medicine that can prevent parvovirus B19 infection.

How to prevent it?
Fifth Disease can best be prevented through good hygiene. This includes frequent, thorough hand washing and disposal of snotty tissues. Follow your standard wellness routine for cold/flu including Vitamin D, C, and anti-viral herbs such as echinacea and astragalus or your favorite Chinese herbal formula. Speak to your practitioner to insure you’re using effective measures for your family.

How to treat it?
Fifth disease is usually so mild, there’s no need for much treatment other than plenty of rest, good hydration and a healthy diet that’s rich in nutrients. From a Western Medicine approach, you can reduce fever, aches or discomfort with ibuprofen in moderation and only if your child is very uncomfortable. Some natural remedies include:
• Oatmeal or baking soda baths if there is discomfort from the rash.
• Echinacea which has antiviral properties and may help improve lymphatic congestion.
• In Chinese medicine, Fifth Disease would most often be diagnosed as a wind-heat invasion, and herbs would be administered to dispel the wind, clear heat, and protect the interior from the invasion from going deeper into the body.

Homeopathic remedies to help alleviate symptoms for Slapped Cheek Disease.

Apis mellifica—for skin rashes that feel hot and dry and are sensitive to touch; may be accompanied by sore throat; often the rash area is puffy & hard and can resemble a bee sting. The rash is stingy. Symptoms are relieved by cool drinks and baths and worsened by heat and warm liquids, they can have little or no thirst.

Belladonna - when the condition comes on with a fast onset, the cheeks are very red with a radiating heat and can be accompanied by a high temperature & dilated pupils. Headache can be throbbing. May desire lemon or sharp flavored drinks.

Calendula – for burns and skin lesions that are fairly superficial; often used after the acute phase of the skin condition has subsided to aid in complete recovery.

Rhus toxicodendron — used for rashes, blisters and vesicles accompanied by intense itching that worsens at night and improves with the application of heat; this remedy is most appropriate for individuals who are generally restless and unable to get comfortable at night. Often have desire for milk or milk products. Often restless & can’t get comfortable. Can affect tendons & ligaments & have painful joints.

Sulphur—for skin disorders that are accompanied by fever and intense itching; this remedy is most appropriate for individuals who are thirsty, irritable while sick, lazy

Complications

Fifth disease is usually mild for children and adults who are otherwise healthy. But, for some people, fifth disease cause serious health complications. Childhood exposure greatens the chances of inflamed arthritis later in life.

People with weakened immune systems caused by leukemia, cancer, organ transplants, or HIV infection are at risk for serious complications from fifth disease. It can cause chronic anemia that requires medical treatment.
Winter, for some reason, seems to bring on sickness more than any other time of the year. This winter around my house has been no exception. There are many natural remedies you can use that might prevent costly doctor visits. Still, we are not always able to avoid doctor visits. If you do go to the doctor you can still use these remedies to speed up the healing time.

Fifth disease is a virus that works a lot like chicken pox or measles, except it is not so severe. You get a rash that covers the body, the cheeks are usually so red they look as if they have been slapped; you generally run fever and also have heavy chest congestion. The rash itself is not generally real itchy and does not leave scars. Also, similar to chicken pox and measles, once contracted you have a lifetime immunity. It is a virus, though, so there is very little you can do from a medical perspective. However, there are several herbal remedies you can use to make your child more comfortable.

**Coughs and Congestion**

1. **Garlic Lemonade**

Garlic lemonade not only soothes a cough, it has antiviral and antibacterial properties, strengthens the immune system, and aids in expectoration. My two year old son likes it well enough he asks for it. He usually does not drink all of it, but any is better than none. To make it you boil 2 to 4 cloves of garlic in a quart of water for 30 minutes, strain, and add the juice of one lemon. I then pour a cup and add a teaspoon to a teaspoon and a half of honey to his cup. (go by the taste) Serve slightly warm. (Remember to never serve honey to a child under 1 year of age) The only draw back to this is bad breath!!

2. **Echinacea**

I got this in liquid form with raspberry flavor. My son does not like this straight, but I put about fifteen drops three times daily in his apple juice or water and he drinks it right up. Echinacea is also antiviral and antibacterial and also improves lymphatic congestion.

3. **Herbal baths**

Eucalyptus, thyme, and wintergreen oil all aid in loosening congestion, and helps to relax breathing. Add 1 to 5 drops to warm water and let your child soak. Alternate the oils for better results. You may find that one particular oil works better for your child than another. You can usually find essential oils in the natural section of your grocery store.

4. **Ginger**

Ginger is another spice good for colds and fever. It aids in breaking up congestion and promotes a good sweat. You can use it in many things. If your child likes pumpkin or squash it is easily added to
these. I even make some warm cider and sprinkle about an eighth of a teaspoon in his cup. This is a strong spice and can be kind of hot if you use too much so always taste first before you serve it.

5. Humidifier

This is a good time to break out that humidifier. My humidifier has a little spot in the top where you can put essential oils. As it heats up the oil smell fills the whole room so you get the benefit from the oil as well as the humid air. I use peppermint essential oil in my humidifier. It really clears your breathing and smells really nice. Some of the oils get too strong when heated so you have to decide what you like. The peppermint is strong but not too overpowering. Lavender is another one that is nice because it is a calming herb and may help your child sleep.

Skin Rash

For fifth disease, chicken pox, and measles you can use a couple of things to help soothe the skin.

1. Oatmeal bath

Fill a large cotton sock halfway with dry rolled oats and tie top closed with a knot or string. Fill your tub with warm water and put sock and child in tub. You and your child can squeeze sock in the water. I love this method. No more mess in the tub. The oats stay in the sock, but the "milk" drains out. My son was kind of fascinated by the sock. He thought it was kind of yucky until I told him it was milk lotion to help his bumps. I would squeeze the sock on his body and he would rub it in. I also has him "swim" in the water and even washed his hair with it. It seemed soothing and smelled nice too. I did not rinse him off after and he was not sticky at all. He just smelled nice and itched less.

2. Baking soda bath

Sprinkle half a cup of baking soda under warm water and let your child soak. This method also seemed to soothe. I thought his bumps looked less red after using this method, but he did not smell as nice. It wasn't nearly as much fun either, but did seem to work just as well. I rotated between these two any time he seemed uncomfortable or if his rash seemed redder.

These are just a few things you can do that might help prevent, comfort, and aid in sickness. Remember also that diet is very important too right now. Just because your child does not feel well does not mean he should be getting suckers and cookies. This is a good time to break out the fresh fruit,(most children think this is a treat) fruit bars,(Look for the ones made from real fruit. Sometimes if their appetite is small they will eat these. This helps with hydration and is healthy) and whatever vegetables they like.
USUAL or CUSTOMARY TREATMENT PLAN:

SCIO TREATMENT SUGGESTED for 5th Disease

**Color** - set patient's favorite if desired, or choose color by chakra that is deficient

**Cosmic:** set 1 for physical body, 2 for astral, 3 for etheric, 4 for mental, 5 for cosmic, 6 for other

**Magnetic Method** - 1+10 is universal, 7 for detox, 8 for regrowth of new tissue, 3 for injury, 2 for metabolic correction, 5 for inflammation, 6 for infection, 9 for psych stress, 2 for energy stimulation

**Frequency** ___ 666hz--1111hz, 5453hz

Zap virus therapy for 30 min once a month in early stages once a week in later stage
Title:

Infection Reaction Testing and Immune Stimulation

Part of the Following:

Large Scale Study of the Safety and Efficacy of the SCIO Device

Chief Editor:

Andreea Taflan DBF IMUNE

Edited and Validated By Medical Staff:

Mezei Iosif MD, Romania
Sarca Ovidiu MD, Romania
Igor Cetojevic MD, Cyprus
Matthias Heiliger M.D. Germany/Switzerland
Klara Hilf M.D. Hungary
Anna Maria Cako M.D. Hungary
Debbie Drake M.D. Canada
Bacean Aurel MD Romania

Consultant:

International Ethics, Lebedei 58,
Oradea, Romania
John Kelsey Phd, ND N.Z. Eng,
Gage Tarrant LBT, C.H.T, USA, Somlea Livia Romania
Richard Atkinson MCSP, Physical Therapist, West Yorkshire England

This study was performed in the field by practicing Biofeedback technicians. Data was collected and the study supervised by the Ethics International Institutional Review Board of Romania. The Data analysis and study presentation is done By the The Centro Ricerche, University of Venice + Padova, It

Abstract:

This study demonstrates the safety and effective qualities of the SCIO device used in a large scale study. A large scale study of over 97,000 patients with over 275,000 patient visits reported their diseases. Many of them reported this disease. And the results of their therapy is reported in this study.

There were 43,023 patients with reported infections. Infections ranging from virus to worms, bacteria to fungus, and ricketsia to pion. This study chronicles their SCIO treatment in general terms.

Introduction:

Over View:

This Large scale research was designed to produce a extensive study of people with a wide variety of diseases to see who gets or feels better while using the SCIO for stress reduction and patient monitoring. The SCIO is a evoked potential Universal ElectroPhysiological Medical apparatus that gauges how a individual reacts to miscellaneous homeopathic substances. The device is registered in Europe, America, Canada, S Africa, Australia, S. America, Mexico and elsewhere. The traditional software is fully registered. Some additional functions where determined by the manufacturer to be worthy of evaluation. Thus a study was necessary to determine safety and efficacy. (As a result of these studies these additional functions are now registered within the EC)

An European ethics committee was officially registered and governmental permission attained to do the insignificant risk study. Qualified registered and or licensed Biofeedback therapists where enlisted to perform the study. Therapists were enrolled from all over the world including N. America, Europe, Africa, Australia, Asia, and S. America. They were trained in the aspects of the study and how to attain informed consent and transmit the results to the ethics committee or IRB (Institutional Review Board).

2,569 therapists enlisted in the study. There were 98,760 patients. 69% had more than one visit. 43% had over two visits. There were over 275,000 patient visits recorded. The therapists were trained and supervised by medical staff. They were to perform the SCIO therapy and analysis. They were to report any medical suspected or confirmed diagnosis. Therapists personnel are not to diagnose outside of the realm of their scope of practice. Then the therapist is to inquire on any reported changes during the meeting and on follow-ups any measured variations. It must be pointed out that the Therapists were free to do any additional therapies they wish such as homeopathy, nutrition, exercise, etc. Therapists were told to not recommend synthetic drugs. Thus the evaluation was not reduced to just the device but to the total effect of seeing a SCIO therapist.

Part 1. The emphasis was on substantiating safety followed by efficacy of the SCIO.

Part 2. Proving the efficacy of the SCIO on diseases (emphasis on degenerative disease)

Part 3. Proving the efficacy of the SCIO on the avant garde therapies of Complementary Med

Part 4. QQC standardization

Methods and Materials:

SCIO Device: The SCIO is an evoked potential Universal Electro-Physiological Medical device that measures how a person reacts to items. It is designed to measure reactions for allergy, homeopathy, nutrition, sarcodes, nosodes, vitamins, minerals, enzymes and many more items. Biofeedback is used for pre-diagnostic work and or therapy.
The QXCI software will allow the unconscious of the patient to guide to repair electrical and vibrational aberrations in your body. For complete functional details and pictures, see appendix.

**Subspace Software:**

The QXCI software is designed for electro-physiological connection to the patient to allow reactivity testing and rectification of subtle abnormalities of the body electric. If a patient is not available a subspace or distance healing link has been designed for subspace therapeutics. Many reports of the success of the subspace have been reported and thus the effectiveness and the safety of the subspace link is part of this test. Many companies have tried to copy the subspace of Prof. Nelson and their counterfeit attempts have ended in failure.

**SOC Index:**

The SCIO interview opens with a behavioral medicine interview. This is called the SOC Index. Named after the work of Samuel Hahneman the father of homeopathy, he said that the body heals itself with it’s innate knowledge. But the patient can suppress or obstruct the healing process with some behavior. Hahneman said that the worst way to interfere with the healing natural process was allopathy or synthetic drugs. Theses upset the natural healing process by unnatural intervention and regulation disturbance. Other ways to Suppress or Obstruct the Cure are smoking, mercury amalgams, stress, lack of water, exercise and many others. This behavioral survey then gives an index of SOC.

The scores relate to the risk of Suppression and Obstruction to the natural Cure. The higher the scores the more the Suppression and or Obstruction. The scores of 100 or lower are ideal. A copy of the SOC index questions appear in the appendix.

**Study Technicians:**

The study technicians were educated and supervised by medical officers. The study technicians were to execute the SCIO therapy and analysis. All were trained to the standards of the International Medical University of Natural Education. Therapists from all over the world including N. America, Europe, Africa, Australia, Asia, S. America and elsewhere were enlisted to perform the study according to the Helsinki study ethics regulations.

They were to chronicle any medical suspected or confirmed diagnosis. Therapists personnel are not to diagnose outside of the realm of their scope of practice. Then the study technician is to inquire on any disclosed observations during the test and on follow-ups report any measured changes.

To test the device as subspace against the placebo effect, two of the 2,500+ therapists were given placebo SCIO devices that were totally outwardly the same but were not functional. These two blind therapists were then assigned 35 patients each (only 63 showed). This was to assess the double blind factor of the placebo effect as compared to the device. Thus the studied groups were

A. placebo group, B. subspace group, and C. attached harness group.

Cross placebo group manipulation was used to further evaluate the effect.

**Important Questions**: these are the key questions of the study

1. *Define Diseases or Patient Concerns*

2. *Percentage of Improvement in Symptoms*
3. Percentage of Improvement in Feeling Better

4. Percentage of Improvement Measured

5. Percentage of Improvement in Stress Reduction

6. Percentage of Improvement in SOC Behavior

7. What Measured+How (relevant measures to the patient's health situation)

8. If Patient worsened please describe in detail involving SOC_

After the patient visit is was complete the data was e-mailed to the Ethics Committee or IRB for storage and then analysis. This maneuver minimized the risk of data loss or tampering. Case studies were reported separately in the disease analysis.

Results:

Before we review the direct disease improvement profiles, we need to review the overall results. The first most basic of question in the results is the basic feedback of the generic patient conditions.

1. Percentage of Improvement in Symptoms

2. Percentage of Improvement in Feeling Better

3. Percentage of Improvement Measured

4. Percentage of Improvement in Stress Reduction

5. Percentage of Improvement in SOC Behavior

The SOC index gives us great insight to this study. Each disease has a different cut off where the ability of the SCIO to help was compromised. In this infection group the SCIO cutoff was 90. This was particularly low for this type of study.

The below reported statistics are not reflective of this cut off, but rather reflect the entire statistics

The Large scale study had over 98,000 patients and 275,000 patient visits we have direct evidence of the safety and efficacy. A placebo group was used for the large scale test to help validate the results.
INFECTION UNSPECIFIED

This disease group number was 43,023. There were 93,890 patient visits

Subspace Treatment 24,516 patients, 18,507 SCIO Harness Patients

OVERALL ASSESSMENT

A. Subspace Treatment 25,516 patients

There were 238 cases were patients reported a negative Improvement.

None of these cases reported any major difficulty.

There were

439 cases reporting negative improvement of Symptoms, .0173% of Subgroup
69 cases reporting negative improvement in feeling better, .0001% of Subgroup
32 cases reporting negative improvement in stress reduction .0001% of Subgroup

23% --- Percentage of Improvement in Symptoms
40% --- Percentage of Improvement in Feeling Better
21% --- Percentage of Improvement Measured
34% --- Percentage of Improvement in Stress Reduction
19% --- Percentage of Improvement in SOC Behavior

5,431 patients reported measured infections. There was a 32% measured improvement over a one month period.

B. SCIO Harness Treatment 18,507 patients

There were 50 cases of patients who reported a negative Improvement.

None of these cases reported any major difficulty.

There were

531 cases reporting negative improvement of Symptoms, .0028% of Subgroup
12 cases reporting negative improvement in feeling better, .0001% of Subgroup
13 cases reporting negative improvement in stress reduction .0001% of Subgroup

43% --- Percentage of Improvement in Symptoms
43% --- Percentage of Improvement in Feeling Better
32% --- Percentage of Improvement Measured
68%-- Percentage of Improvement in Stress Reduction

23%----Percentage of Improvement in SOC Behavior

7,800 patients reported measured infections. There was a 56% measured improvement over a one month period.

CASE STUDY REPORT CONDENSATION:

“I purchased the devise 2 years ago after a LONG journey with Lyme disease. I use it on my self and feel it is an extremely important tool that assists me in balancing my stressors and helps me prevent "recurring/relapses" that are often part of the "picture" of Lyme disease.

My brother was then diagnoses with Barrett’s esophagus ( he had severe digestive troubles for many years) and developed severe arthritis. He rarely goes to physicians. He is retired military and was finally persuaded to go to the VA hospital. Fortunately he was well treated (physically and emotionally) and returned home.

He then came to see me and experienced EPFX. He is quite "skeptical" of my holistic health focus but agreed none the less (he has been impressed in the improvement in my health during the past 2 years). He was amazed. . . . He said he couldn't not remember the last time he felt "this good". and returned home to "rave" about it to his wife.

A year later he was "scoped" to monitor the Barett’s esophagus, and was told there was no sign of it. In addition to EPFX, he made dietary changes and utilized nutritional supplements. The EPFX helped him see the value in addressing all aspects of health, mind, body, spirit and emotion that I doubt he would have otherwise even considered.

I have VERY strong feelings about being an American and having FREEDOM of choice. My brother served in the Army for 23 years and "fought" for this right. WE MUST include the EPFX and holistic health as our right to choose the health care that is in alignment with each individual's belief system.

Thanks you, Dr. Nelson, for all you do and have done to provide this "state of the art" devise and wisdom to us.

Mississippi, U.S.A.”

“A 42 year old female presented to me for lower back pain release, she had had physio but found it too painful to continue, everywhere the physio touched caused her tremendous pain and she could not continue. I saw her for 5 sessions of stress reduction and it became apparent during our sessions that she had been emotionally abused and abandoned by her mother at an early age. My client then decided to go onto antidepressants during our early sessions and by the 5th sessions she was off the medication, mainly pain free apart from some occasional sciatic pain, could now continue with her Pilates which she had to discontinue due to pain. The client had been referred to me by her physio who contacted me to inform me of the incredible changes in the client’s pain and emotional state.

A 4 year old boy was admitted to my local hospital with meningitis following chicken pox, he was confused, disorientated and had not slept for 2 days. The parents asked me to do a subspace session on him once the diagnosis was confirmed and within 10 minutes of the subspace session commencing the child fell asleep, the first time for 2 days, remained asleep for most of that day and night, woke up the following morning, temperature was down, he was orientated and discharged later that day.

City unknown”
“My first experience of having a Quantum session was quite amazing.

I had not said anything to the technician that my eye sight was cloudy when I would look in the distance. I had been telling myself that I should go to the eye doctor and see what he would have to say about it. But that wasn’t even a concern that day of my session, and I never mentioned it, or even thought of mentioning it to her.

Anyway the next morning my eye sight was clear and has been since. This is about 4 years ago. I researched this and found that this was one type of a cataract. And because of this, I researched the device and had one session a month for 6 months before buying a device for myself.

I also had eye floaters and they are gone too.

I have fibromyalgia. It has been 4 years that I have had my device. When I over do muscles with cleaning windows, painting and etc. it would take me about a week to work out the pain using my hot tub and then applying essential oils at bed time.

Now I don't feel any stress caused by pain the next day when I use the hot tub, oils and do a session on myself before going to bed.

I had colon cancer 8 years ago followed with 6 months of chemo. I had awful chemo brain fog. My head felt awful and my concentration was really bad. I gained 35 pounds in 35 weeks. My joints were so painful that I would cry. I was dizzy and I couldn’t stand the humid weather. I tried a couple drugs but they made me feel worse. I then found coral calcium and took a mega dose of it for 6 weeks and in 3 weeks my sore joints were all gone and my weight gain quit as soon as I started the coral calcium. I started on a mega dose of oxygen drops and my dizziness went away in about one month, and my body felt much better from my fibromyalgia. This was because the oxygen drops helped with the lack of oxygen to my brain (my dizziness) and with fibromyalgia, which I have read is one cause of lack of oxygen to the tissues.

But my concentration and memory was still very bad when I got my device. I was scared!

When I started working on my stress in the NLP panel the rectification numbers were way down in the teens and single numbers, and they went up and down, up and down, in that area for several sessions before going higher and higher. I also had many stressed areas of the brain. It took me 10 months to clear the stress. Each month I think back at the month before how I felt, and I knew I am making improvements each month, with all my stress.

I often wondered if the brain would of been the place my cancer would of returned if it weren't for all my natural health.

I also take a lot of whole food supplements. I still take my oxygen drops every day. I take only 1/4 of a sleeping pill which I got hooked on them when I had chemo. But I'm down to just 1/4 of one.

I have not doctored with any health problems for 4 years.

I have had some nerve problems in my arm when I would drive in the car and my arm would rest on the door handle arm rest area to long. When I get it, I do a session and the pain is gone the next morning. It is longer and longer between times when I get it now.

Years ago I would get neuritis (Pain)in my head when we would go snowboarding and I would have to go in and get a shot for it. Last winter I got it just from going without my head being covered in the cold (Minnesota winters). Well I did stress management for it and in 3 days it was all gone.
I would get a bad sinus infection every winter and would sometime have to take a couple rounds of antibiotics. I have not been to the doctor with that problem for several years. I also use essential oils for it. Since I got my device, my nose does not run all the time like it used too.

My husband had a sty that would come and go quite often, several times a year. When addressing that stress with a stress management session, it was gone the next morning, and its been over a year, and it has not returned.

A friend of mine put her back out lifting on a client of hers. She had been to the Chiropractor twice and Massage therapist twice. She then come to me on a Sunday afternoon. She was experiencing a lot of stress due to pain. She could hardly walk up my steps and it was very painful for her to sit and stand up again.

The next morning she was pain free with just a sore spot - to the touch - in one area of her behind.

City unknown“

“It has been some years ago, when during the X-mas holidays a friend of mine called, excused herself and asked me if I -though we had holiday - would treat a friend of hers, who went through a couple of days in the ambulance room of the hospital due to intense pain and immobility in her lower and upper back. She could not sleep and move anymore because of pain and distortion. Nothing had helped, she had gotten all kind of injections. I agreed that I would help immediately. The client, a woman of 28 years, hardly could walk up to the 1. floor, where I live. She climbed up with a stick, her back bent deep down. I must admit when I saw her my heart pounded. She had 2 people to help her to half sit half lie so that I could put the strings on. I went through the whole spinal program, spinal fluid, scanned the bacterias and virus and send homoeopathics related to the spine and pain, she also had a very bad stomach infection. After an hour she more and more relaxed, lying straight on her back and when I asked her to slowly roll over her side to get up and stand, I was hit by astonishment and joy of everybody involved. The patient stretched herself in full length, amazement on her face and with a big sigh she said this is the first time since 10 days that I feel painless and I can stand up straight.

City Unknown, Germany“

“In 2003, the mother of an 8 yr old boy presented with warts on hands, trunk and feet along w/frequent diarrhea and skin problems. She had taken him to two doctors who were unable to stop the warts from growing. The scan revealed the papilloma virus.

1. After zapping virus for some time and activating the point probe to present to the mother wart, the family was given nutritional education, diet changes were recommended and he parasite cleanse herbs and an immune booster. Four weeks later, they returned very elated that the warts were disappearing, diarrhea had disappeared and he was feeling better. Four weeks later, the warts were virtually gone and he was a healthy child. The Mom proceeded to tell her D. O. about the success and the D.O. then referred other clients to me.

Tulsa, U.S.A.”

“A retired 66 year old male presented with sores on the tips of his toes. He ate well and exercised and was in great health otherwise. He'd had prostate cancer years earlier. He played golf and the sores on his feet interfered with his enjoyment. The EPFX device has cleared up the sores on the tips of his toes + an additional point probe treatment to a sore knuckle, allowed the finger to expel a huge pus pocket to completely clear the irritation with the knuckle.
Tulsa, U.S.A."

“My four year daughter developed an urinary tract infection and would scream while urinating. I scanned her with the EPFX and urinary tract infection had a high reaction on the scan. I “zapped” that item and after the EPFX session my daughter urinated without pain.

I had a severe sore throat. The EPFX scan showed strep as a high reaction. I “zapped” that item and in the morning my sore throat pain was gone.

My six month old daughter would not sleep one night and was screaming. I had no idea what was wrong. I scanned her with just the head harness and ran the recommended programs. She stopped crying and fell asleep.

Twice I have been out of town with my EPFX and my daughter has become ill. After scanning her remotely, her condition has improved each time.

My daughter started vomiting repeatedly one night. After I repeatedly “zapped” the pathogens with the highest reaction, the vomiting ceased.

City Unknown"

“1> The first two months my eye disease (I hope to spell it correctly)
Mylacular Degeneration is totaly gone (I wasn’t ever working on it).
2> I have lost fifty pounds this year and I didn’t even diet. IN fact I
had a horrible diet since I was traveling so much. I still have fifty
or so to go. I am told by several people that the EPFX has got my
metabolism normal so the weight is coming off. What ever I am happy
3> My ten year old grandson is ten and his entire life he has bad lungs.
by Sept / Oct every year of his life he has pneumonia but not this year.

City Unknown”

"I started with Acne, thyroid, candida, herpes and exhaustion. After a couple of treatments long distance I noticed more energy, no candida and less herpes breakouts. I love it. It has really helped my overall health." - (Pasadena, CA)

“One middle-aged female client came to see me to relieve some of the stress related to physical discomfort/pain/muscle weakness/stiffness she was experiencing in her sacrum, right knee, and right foot. She was combining chiropractic, physical therapy/exercise, and stress relief to increase her quality of life. After three sessions, here are some words of testimony she provided:

"Between all that I’ve been doing for this (quantum biofeedback, chiropractic, and exercise), I managed to go dancing with my husband last Tuesday and was pain-free for the entire 40-minute dance session. I recognize I have a ways to go in getting all muscles engaged, balanced, and toned and I’m very encouraged. Thank you for the part biofeedback is playing in this!"
Another middle-aged female client had been diagnosed by her medical doctor as having an acute infection in surgical incisions on both her feet. She came to me for a session to relieve the stress associated with the pain of the infection. Here are her words of testimony:

"Thank you for the quantum biofeedback work. The infection is almost completely out of my system. My feet feel tremendously better than they did last week. My podiatrist assisted my healing by creating new orthotics to fit my newly shaped feet. These have taken my pain level down by 50%. The other pain I have is caused by the over-extended nerves, which I inflamed by my off-balance walking. Nerves tend to take more time to settle down. Between your quantum biofeedback and that which my doctor is doing, I am feeling so much better. Thank you!!!!"

I also did three sessions for a 12 year-old feline to relieve stress associated with an old fracture in her tail. After the sessions, her tail no longer contained the kink associated with the fracture and she tolerated petting along her back and hindquarters, which she was intolerant of previously, due perhaps to the stress and pain of the old injury.

Idaho, U.S.A."

“The EPFX device has saved my life and given my children the opportunity to live with a healthy mom. I purchased my device in March of 2007, and attended training in Springfield, MO in July of 2007. While there, I participated in the healing opportunities that were available to the participants. It was determined that my chronic fatigue and pain were due to Lymes, which had most likely entered into my spinal cord and cerebral-spinal fluid. Most likely I had had Lymes and when I received the lumbar puncture for the deliverance of interthecal morphine during labor, and the Lymes followed the blood into the spinal cord.

After I had my daughter in 2001, I was never quite the same. I had "meningitis" type symptoms - crushing fatigue, stiffness in my spinal cord, and pain upon movement and bending. I couldn't think as clearly as before. My eyes were extremely photo-sensitive and being in large spaces or with large crowds was overwhelming to the point I had to limit my lifestyle. (Prior to this, I had been a Flight Attendant and worked in large multi-national corporations with no problems - this was new.) The fatigue was life-altering. I had about 4 "good" hours per day in which I could function - not enough for a mother of an infant! I was terrified to try allopathic medicine as I was concerned that I would receive the label of "depressed" without any attention given to my physical state of being. I was currently using my knowledge in Oriental Medicine to turn my situation around, but I couldn't get to the root of the problem.

After my sessions in Springfield, I returned home and continued to balance myself on the EPFX as well as take the homeopathic formulae that could best help me. What happened seems miraculous, although the explanation is clear. At first, I felt "worse" - as my body stopped working in "status quo" mode, making the best of a bad situation and trying to maintain homeostasis, but instead kicked in and started fighting off the Lymes, Ameobas, and various fungi and bacteria – I really felt the truth of my health state. After 6 weeks, I started to feel better! Now, nine months later, I am thrilled to report that I can rise in the morning with my children, no aches or pains, care for them, care for our home, AND run my business! I have been given my life back!!

City Unknown"

“We have overcome several sufferings, such as pain and stuffiness in the sinus area.
My three-year-old granddaughter was diagnosed with pneumonia, he ER doctor gave a prescription and agreed that biofeedback and therapeutic grade essential oils would probably do the trick as well and his scrip. He was right.

City Unknown"

“On May 5, 2006, my daughter ten aged 38 suffered an accident which impacted her face. After two CAT scans, and several other investigative procedures, it was decided that she had broken the part of the bone just above the intra orbital groove, under her left eye. She suffered from double vision, violent headaches, her sinuses were also affected with an infection and she also had mandibular problems, some of her teeth being a little loose.

As it was an injury sustained at work, she was taken on by the Workers compensation Board and was assigned several doctors including her own GP, a GP from the WCB, an eye specialist and an orthodontist.

As the infection was not subsiding, in August, she was put on a course of daily intravenous antibiotics – and for this she had to attend the hospital daily. ON her return from the hospital she felt almost worse than before she went. She was very tired and prevented from doing any kind of lifting, going up and down the stairs, standing for any period of time. Her life was being put on hold.

BY September, it was decided that she should be operated on, come what may and that a metal plate would be inserted to replace the missing bone. But, as an emergency procedure, that operation would take place at the earliest in May 2007 – that is a full year after her accident. She was also told she would have to grin and bear it until then. This is when she called on a friend of hers, a Doctor of Chinese Medicine who is also an EPFX practitioner. The upshot of it all is:

1) He first saw her at the end of September – and dealt with her obvious stress.

2) She had two more sessions with the EPFX, one at the end of October and another one in the third week of November

3) Finally, she had her last one with this doctor in the second week of December.

The same doctor each time explained to me what he was doing and he taught me how to use the EPFX so that I could keep providing my daughter with the support she needed. I purchased an EPFX, which I received in March 2007. Until then he kept on providing my daughter with subspace sessions and under his guidance at first, then on my own once I had received the proper instruction, I carried on.

The end result is that my daughter was back at work on the first week of January 2007 with restricted duties - but when she was finally discharged from all “medical care” at the end of February, the last investigation she received showed the bone had regenerated on its own and that she would not after all need an operation. Her vision was back to normal, the headaches had disappeared and her lower jaw bone had clamped back properly around her teeth.

Vancouver, Canada”

“For years of unanswered questions as to my urinary tract infections. My clueless doctor threw every anti-biotic at me that he could think of and then some! With absolutely no success. Then, I found the EPFX (what a GOD send). This illness was not just contained to my urinary tract (bladder, kidneys and urethra) but it also created these life crippling muscle CRAMPS (Charlie Horses) in my back. It took the EPFX approximately 3 minutes to find the
stressors and several sessions and life changes (recommended by the system) to free me of what I thought would be a life long condition. I say this because, my grandmother (gone now) and my mom (86 years old now) both have suffered from this and being the guinea pigs to multiple doctors for many many years. My grandmother dead living with this condition, but now I am at peace knowing that my mother and myself no longer have to suffer!

City Unknown”

“I am a 50+ year old female diagnosed with Lyme in 2003. Since June 2006 using the SCIO I have kept the stressors of this disease in check and have not had to revert back to using antibiotics to keep this illness at bay. I love having a healthy, drug free life and find several alternative health means to keep me healthy, the SCIO biofeedback device being one of these. Without the use of the biofeedback I believe I would still be going from my bed to the couch and the couch back to the bed. It is instrumental in my health regime and will continue to be so.

City Unknown”

“I had been diagnosed with a severe bladder infection and told to take antibiotic for 2 weeks then come back and do a second round of antibiotics to make sure that the infection was gone. I called a fellow practitioner to please do a session for me for the bladder infection. She did the session and I felt better. She did a session for me every 3 days for 2 weeks, 4 in total. I went back to my doctor and she said that the infection was gone and said that she would make sure to give me the same antibiotic in the future because it worked so well. I told her that I did not take the antibiotic, that I had a biofeedback practitioner do sessions for me, on her EPFX/SCIO biofeedback device, to get rid of the infection, as I don’t want to take medicine unless I really have no other alternative. She said, well great, as long as it worked.

City Unknown”

“Age 27, female, infected sweat glands in arm pits and groin for past 3 years. Initial session was July 19/06. After two weekly sessions, she reported on Aug 3/06 40% less swelling and pain. After 2 more sessions, on Aug 16/06, she reported 70% improvement.

City Unknown”

“A 22 year old female, with a reoccurring eye infection was unable to wear her contact lenses and was told by her optometrist and ophthalmologist that she would have to give up wearing her contact lenses. During a three month period, she made approximately 7 visits to her optometrist who conferred with his partner optometrist, and then she went to an ophthalmologist. She had been given antibiotics, which somewhat cleared the infection for a few days, but it continued to reoccur. They were unable to help her and advised she was allergic to wearing any type of contact lense. I used multiple eye therapies from the QXCI and looked for reactive pathogens in the main matrix. After each session she would improve and after the fourth session there was no reoccurrence and she has been clear and wearing her contact lenses for four months.

City Unknown”
Discussion:

The results show significant improvement in symptoms and feeling better. Items measured included bacterial culture, throat swabs, anti-body test, etc. The Collective results show a dramatic benefit to the SCIO therapist visit.

Inflammatory conditions and major tissue injury are frequently associated with a wide range of systemic responses which embrace vascular, metabolic, endocrine, neurological and immunological functions. Those occurring soon after the onset of infection or injury are called the acute phase response. The acute phase response has the outstanding characteristic of being a generalised host reaction irrespective of the localised or systemic nature of the initiating disease, and several components of the response are remarkably constant despite the considerable variety of pathological processes that induce it. This uniformity of reaction points to the involvement of relatively few mediators in the overall ‘orchestration’ of the acute phase response. The major mediator coordinating the response is interleukin_1, aided and abetted by tumour necrosis factor (TNFa). Thus the mononuclear phagocyte system, which serves as the major source of these cytokines, plays a pivotal role.

Mononuclear cells are stimulated to produce IL_1 and TNFa by:

1. Bacterial endotoxin _ lipopolysaccharide (LPS), especially when complexed with LPS_binding protein.
3. Intact micro_organisms following phagocytosis.
4. Other cytokines produced by activated lymphocytes and macrophages.

Interleukin_1 and TNFa have a multiplicity of biological activities at the following sites:

1. Hypothalamus _ fever
2. Bone marrow _ neutrophilia
3. Neutrophils _ activation
4. B_lymphocytes _ antibody production
5. T_lymphocytes _ IL_2 production
6. Liver _ acute phase proteins
7. Fibroblasts _ proliferation and collagen synthesis
8. Muscle _ protein catabolism with amino_acid release

COMPONENTS OF THE ACUTE PHASE RESPONSE

A. Fever

Body temperature is controlled partly by reflexes initiated by the thermosensory nerve endings in the skin, but principally by a central control mechanism in the hypothalamus. The central mechanism can be likened to a thermostat, and this thermosensory centre (shown in animals to be in the anterior hypothalamus) responds to
variations in the temperature of blood flowing through it. Signals from the thermosensory centre influence the activity of other hypothalamic centres which regulate the physiological processes responsible for heat production and heat loss, thus controlling the core temperature. In fever the thermostat is set high and a rise in temperature is achieved by increasing heat production and inhibiting heat loss by:

1. Cutaneous vasoconstriction:
   (i) Coldness and pallor of the skin at the onset of fever
   (ii) Contraction of the erector pili muscles ('gooseflesh') maintains an insulating layer of air next to the skin

2. Higher metabolic activity particularly in skeletal muscles and in the liver

3. Shivering associated with increased catabolic activity and heat production in skeletal muscles.

Fever is accompanied by general malaise and anorexia. If the temperature rises to 41.6°C (107°F) there is a danger of direct thermal injury to various tissues, and particularly to cerebral neurones. However, a potentially beneficial effect of hyperthermia is augmentation of the immune response by T-helper cells. The high setting of the thermosensory centre in fever is brought about by interleukin-1. The effect of interleukin-1 on thermoregulation is mediated by Prostaglandins, in particular by PGE2. This mechanism underlies the value of drugs like aspirin, an inhibitor of prostaglandin synthesis, in reducing fever.

B. Neutrophil leucocytosis

Normally the neutrophil count is between 2.5-7.5 x 10^9/litre. In infections this rises to 10-20 x 10^9/litre particularly with pyogenic bacteria.

Lesser degrees of neutrophil leucocytosis occur in:

(i) Pregnancy
(ii) Strenuous exercise
(iii) Severe mental stress
(iv) Injection of glucocorticoids or adrenaline
(v) Following necrosis of tissue, e.g. myocardial infarction

Leucocytosis may develop within a few hours of the onset of a bacterial infection and is of diagnostic value. This early rise is due partly to release of many polymorphs which normally lie marginated in the venules of the lungs and elsewhere, and partly due to release of immature polymorphs lying in the sinusoids of the red marrow. The leucocytosis is maintained, however, by an increased rate of formation in the marrow. As polymorphs have a life span of about 12 hours, death and loss of polymorphs in exudation, for example in a suppurating infection requires a large output requiring hyperplasia of the myeloid or granulocyte series in the bone marrow.
Interleukin_1 has a central role in neutrophil leucocytosis. It promotes:

(i) Release of neutrophils from their marginated state
(ii) Increases granulopoiesis

Actions on neutrophils themselves include:

(i) Release of granules
Lactoferrin _ Iron_chelation
Lysozyme _ Antibacterial properties
(ii) Increases oxidative activity
(iii) Increased hexose mono_phosphate shunt activity

C. Acute phase and stress proteins

In febrile conditions or following injections of endotoxin or
interleukin_1 there is a dramatic increase in the synthesis of intracellular stress (heat shock) proteins and some proteins by the liver. These latter proteins enter the circulation and can be detected within a few hours of the onset of fever which is why they are labelled acute phase proteins.

1. Acute phase proteins These include:

   (i) C_reactive protein
   (ii) Fibrinogen
   (iii) Haptoglobin
   (iv) Ceruloplasmin
   (v) Amyloid A and P proteins

Interleukin_1 promotes protein catabolism in skeletal muscle and a

flux of amino acids into the liver where protein synthesis is substantially increased. There is evidence of independent regulation of each of the acute_phase proteins. Some of these proteins, for example haptoglobin (an x2 globulin capable of binding free haemoglobin) and fibrinogen are normally present in substantial levels in plasma but increase 2 or 3 fold after interleukin_1 injection. Others which normally occur at low levels, e.g.
C_reactive protein, increase several hundred fold. Likewise some appear rapidly, but others require several days to reach maximum levels. C_reactive protein is capable of binding in a non_immunological way to 'foreign' antigens and activating the classical complement pathway. It thus acts as an opsonin and prepares material for phagocytosis.
2. Stress proteins

Stress (or heat shock, HSP) proteins are present in all living systems and are among the most highly conserved in nature. Their intracellular production is induced by rises in temperature and synthesis commences rapidly (within 5–15 minutes) after the onset of ‘heat shock’. Other stimuli which induce the synthesis of stress proteins include:

(i) Cytotoxic agents

(ii) Free radicals, e.g. in reperfusion injury

(iii) Cellular poisons, like alcohol and heavy metals

(iv) Certain viral infections

Stress proteins together with ubiquitin are involved in the transport and degradation of proteins denatured by cell injury so that, for example, proteins ‘tagged’ with ubiquitin can undergo proteolysis and be recycled into the cell's economy, while HSPs and other chaperones regulate the assembly and disassembly of proteins and provide a means of shuttling polypeptides between molecular structures.

D. Nutritional responses

Following major infection or injury the body goes into substantial negative nitrogen balance, part of which meets the increased caloric needs of fever. Accelerated muscle protein degradation leads to myalgia and reduced physical performance. Interleukin_1 acts directly on skeletal muscle to promote protein catabolism, an effect mediated by an accumulation in the muscle of PGE2 which ultimately activates proteolysis in the lysosomes. This brings about amino_acid release from muscle which helps to satisfy the increased energy requirements via gluconeogenesis, but also contributes to the synthesis of proteins in proliferating immunological cells and the synthesis of acute phase reactants released from the liver.

Changes in trace metals

The serum levels of iron and zinc are depressed in the acute phase of bacterial infection. There is evidence that the decrease in serum iron is probably important in protecting the host against various bacteria as a reduction in iron suppresses the growth rate of various micro_organisms. Iron appears to be sequestrated by the binding substance lactoferrin, and lactoferrin/iron complexes are deposited in the tissues. Interleukin_1 has been shown to activate lactoferrin release from neutrophils. There is also an increase in serum copper levels in keeping with the increase in the coppertransport protein ceruloplasmin. Copper is involved in enzyme and transport mechanisms but its role in fever is unknown.

E. Vascular responses and shock

Selective arterial constriction increases peripheral resistance and tends to compensate for diminished cardiac output. The main vessels involved are those of the skin and splanchnic circulation, whilst blood flow to the heart, brain and skeletal muscle is maintained at normal levels. When vasoconstriction fails to maintain normal blood pressure the clinical picture of shock develops. Underperfusion of tissues leads to accumulation of acid metabolites and vessels may cease to respond to normal constrictor stimuli. Progressive and irreversible arteriolar dilatation occurs and blood is 'sequestrated' in the greatly enlarged capillary reservoir. Intractable hypotension results and this constitutes a lethal condition sometimes termed 'irreversible shock'.
Main types and causes of shock

1. Hypovolaemic
   (i) Haemorrhage
   (ii) Loss of plasma, e.g. burns
   (iii) Loss of fluid and electrolytes, e.g. severe diarrhoea

2. Cardiogenic
   (i) Myocardial infarction
   (ii) Major pulmonary embolism
   (iii) Following cardiac surgery
   (iv) Myocarditis and other causes of acute cardiac failure

3. 'Septic'
   (i) Endotoxic, mediated by bacterial lipopolysaccharide e.g. endotoxin
       A from Pseudomonas aeruginosa
   (ii) Exotoxic, e.g. exotoxin from Staphylococcus aureus (toxic shock syndrome)

4. 'Vascular'
   (i) Anaphylactic
   (ii) Neurogenic, e.g. spinal injuries

Pathogenesis

1. Hypovolaemia - a fall in cardiac output resulting from reduced blood volume
2. Cardiogenic - a fall in output resulting from inadequate heart function ('pump failure')
3. Septic shock
   (i) Release of TNFa and IL-1 in high concentration
   (ii) Induction of nitric oxide synthetase in endothelial and vascular smooth muscle cells leads to a build up of nitric oxide (NO) which is responsible for sustained vasodilation and hypotension
   (iii) Activation of complement with release of anaphylatoxins C3a/C5a
   (iv) Activation of neutrophils leads to endothelial damage resulting in capillary leakage
Activation of Factor XII initiates coagulation and bradykinin formation. The former may lead to disseminated intravascular coagulation.

4. Vascular mechanisms
   (i) Pooling of blood in
   a. Large peripheral vessels due to loss of vasomotor tone
   b. Capillaries resulting from persistent venular constriction
   (ii) Increased vascular permeability
   (iii) Slowing of blood flow resulting from 'sludging' of red cells

Disseminated intravascular coagulation (DIC)

This is a condition in which the activation of coagulation factors leads to deposition of platelet fibrin thrombi in small vessels throughout the body. The consumption of coagulation factors and activation of fibrinolysis frequently leads to life-threatening hemorrhage.

F Metabolic reactions

Features of the early metabolic reaction are: 1. Hyperglycaemia 2. Fall in body temperature 3. Decreased oxygen consumption 4. Alteration of intracellular oxidative mechanisms

5. Loss of albumin from plasma due to transcapillary escape

Irreversible shock

Features include:

1. Reduced oxygen consumption
2. Diminished heat production
3. Increasing hypoxia
4. Metabolic acidosis
5. Hypotension
6. Hypoglycaemia

G. Hormonal reactions

Increased production of:

1. Catecholamines which
   (i) Increase cardiac output
(ii) Constrict arterioles

(iii) Increase gluconeogenesis

2. Corticosteroids which bring about

(i) Retention of Na+

(ii) Excretion of K+

(iii) Catabolism of proteins

3. Aldosterone

   Potassium deficiency

4. ADH

Water retention

PATHOLOGICAL LESIONS IN SHOCK

1. Kidneys
   (i) Acute tubular necrosis
   (ii) Glomerular microthrombosis
   (iii) Acute cortical necrosis (rare)

2. Lungs
   _‘shock lung’ or adult respiratory distress syndrome Features_
   (i) Congestion and intraseptal oedema
   (ii) Microthrombi
   (iii) Hyaline_membrane formation
   (iv) Atelectasis
   (v) Interstitial pneumonia

3. Liver

   (i) Centrilobular ischaemic necrosis
   (ii) Fatty change

4. Adrenals

   (i) Lipid depletion (compact_cell change) in cortex
   (ii) Focal necrosis of cortical cells
   (iii) Massive haemorrhage (Waterhouse_Friderichsen syndrome)

5. Heart

   (i) Subendocardial haemorrhage
(ii) Contraction bands within myocytes

6. Gastrointestinal tract

(i) Acute ulceration of the stomach and duodenum (Curling's ulcers)

(ii) Haemorrhagic gastroenteropathy

Focal or more extensive haemorrhage into the stomach or intestinal mucosa associated with local superficial ulceration, probably resulting from hypoxia

7. Brain

Anoxic or hypoxic encephalopathy (see p. 338)

8. Pituitary

Necrosis following hypovolaemia (most commonly due to postpartum haemorrhage) giving rise to:

(i) Acute insufficiency _ Sheehan's syndrome

(ii) Chronic insufficiency _ Simmond's disease

LATE REACTIONS TO INJURY AND INFLAMMATION

A. Metabolic reactions

Catabolic phase

1. Rise in oxygen consumption

2. Rise in body temperature

3. Catabolism of protein increased

4. Increased mobilisation of fatty acids

5. Increased gluconeogenesis from amino acids derived from muscle

Anabolic phase

1. Positive nitrogen balance restored

2. Electrolyte equilibrium regained

B. Haematological reactions

1. Increased formation of platelets

2. Increased fibrinogen production
3. Decreased plasminogen
4. Anaemia
5. Lymphopenia

C. Hormonal reactions

Increased production of
1. Insulin which stimulates glucose uptake, and glycogen, fat and protein synthesis
2. Growth hormone _ possibly involved in the mobilisation of adipose tissue
3. Thyroxine

D. Immunological reactions

1. Reactive changes in lymphoid tissues, e.g. hyperplasia in lymph nodes, splenomegaly
2. Production of IgM antibodies directed at various components of the injured tissues

E. Amyloidosis

Although the synthesis of amyloid precursor proteins is part of the acute phase response to inflammation, when inflammation is prolonged the sustained increase in the serum concentrations of these proteins leads to the appearance of fibrillar material (amyloid) in many different tissues. However, amyloid is not a specific protein. It can be composed of one or more proteins or glycoproteins all having a characteristic b_pleated fibrillar appearance on electron microscopy. Thus, amyloid complicating long_standing inflammation is made up of amyloid A (AA) and P (AP) proteins derived from partial degradation by macrophages of SAA and SAP proteins. Another major form of amyloid is composed of AL protein which is derived from immunoglobulin light chains, mainly of lambda type. In addition, a heterogeneous collection of amyloid types (some of which have not been characterised) are found in certain hereditary or familial conditions and as localized deposits.

Diseases associated with amyloid deposition

1. AA/AP amyloid

   (i) Chronic infections (of long standing)

   a. Tuberculosis
   b. Bronchiectasis
   c. Osteomyelitis
   d. Pyelonephritis
   e. Leprosy
   f. Syphilis
(ii) Chronic inflammatory disorders

a. Rheumatoid disease
b. Crohn’s disease
c. Systemic lupus erythematosus
d. Pustular psoriasis

(iii) Malignant states

a. Hodgkin's disease
b. Carcinomas of bladder, kidney, stomach, bronchus, ovary

2. AL amyloid

(i) Multiple myeloma
(ii) Waldenström’s macroglobulinaemia
(iii) Solitary plasmacytoma (localised)

3. Hereditary/familial types

(i) Amyloid polyneuropathy
(ii) Amyloid cardiomyopathy
(iii) Amyloidosis associated with Mediterranean fever
(iv) Familial amyloid nephropathy, urticaria, and deafness
(v) Familial cutaneous amyloid

4. Localised amyloid deposition

(i) Senility

a. Heart
b. Brain _ also in Alzheimer’s disease
c. Islets of Langerhans
d. Seminal vesicles

(ii) Endocrine tumours

a. Medullary carcinoma of the thyroid (AMCT)
b. Pituitary adenoma
c. Islet cell tumours of the pancreas

(iii) Non-endocrine tumours

a. Naso-pharyngeal carcinoma
b. Basal cell carcinoma

(iv) In the islets of Langerhans in diabetes mellitus

(v) Tumour-like deposits in:

a. Larynx, trachea, bronchi, and lung
b. Genito-urinary tract
c. Eye
d. Tongue
e. Heart
f. Skin

Pathogenesis

It is believed that amyloids are produced by partial degradation of precursor proteins. Degradation of AA protein takes place either in endothelial cells or in fixed macrophages of the RES, particularly in sinusoid lining cells, and this may explain the tendency for amyloid to be deposited in relation to vascular basement membranes. The abnormal, or incomplete, degradation of the precursor proteins may be under the influence of a further protein synthesised by the liver which has been termed amyloid enhancing factor (AEF).

AL amyloid is thought to arise by partial degradation of immunoglobulin light chains produced in excess by abnormal populations of plasma cells.

Detection of amyloid

1. Of historical interest, iodine and dilute sulphuric acid produce blue coloration similar to that obtained with starch (Latin_amylum)
2. Congo_red and Sirius_red stain amyloid orange/red and when viewed under polarised light gives apple_green birefringence
3. Thioflavine_T staining gives rise to yellow fluorescence in ultraviolet light
4. Amyloid has a characteristic ultrastructural appearance being composed of parallel arrays of fibres 7 to 10 nm diameter
5. Potassium permanganate staining reveals different structural forms
Organ involvement in amyloidosis

1. Kidney

Amyloid is deposited in:

(i) Glomeruli (mesangium and basement membrane)
(ii) Tubular basement membranes
(iii) Blood vessel walls

Results in:

(i) Nephrotic syndrome
(ii) Renal vein thrombosis
(iii) Haematuria
(iv) Nephrogenic diabetes insipidus

2. Spleen Deposited in:

(i) Malpighian bodies (sago spleen)
(ii) Diffusely in the walls of sinusoids

Results in:

No significant disturbance of function

3. Liver

Deposited in:

(i) The space of Disse between the sinusoid lining cells and the hepatocytes
(ii) Blood vessel walls

Results in:

(i) Pressure atrophy of hepatocytes. In extreme cases this may lead to liver failure
(ii) Portal hypertension if involvement of the central veins leads to outflow obstruction

4. Heart

Deposited in:

(i) Subendocardial zone
(ii) Interstitial connective tissue
Results in:

(i) Cardiomegaly and cardiac failure
(ii) Disturbances of rhythm

5. Adrenal glands

Deposited in the zona glomerulosa and then advances throughout the cortex

Results in Addison's disease (rarely)

6. Gastrointestinal tract

Deposited in:

(i) The vicinity of epithelial basement membranes
(ii) Walls of small blood vessels
(iii) As plaques in the submucosa

Results in:

(i) Macroglossia
(ii) Dysphagia (oesophageal rigidity)
(iii) Malabsorption syndrome
(iv) Diarrhoea
(v) Protein_losing enteropathy
(vi) Pseudo_obstruction
(vii) Ulceration of plaques

7. Skin

Forms:

(i) Lichen amyloidosis
(ii) Localised nodular amyloidosis

Calcification

Calcification other than that normally occurring in the teeth and skeletal system (heterotopic calcification) is seen in the following circumstances:
1. Associated with advancing age Deposits are found in:

(i) Pineal gland

(ii) Tracheal and laryngeal cartilages

(iii) Costal cartilages

(iv) Dura mater

2. In dead or degenerate tissue (dystrophic calcification) Examples

(i) In old tuberculous lesions

(ii) In scars

(iii) In dead parasites

(iv) In degenerate tumours, especially uterine leiomyomata (fibroids)

(v) In atheromatosus plaques

1. In association with increased levels of calcium (or occasionally with increased phosphate) in the blood and tissues, usually derived from the skeleton but also involving increased absorption from the intestine and decreased loss through the kidneys. Such calcification occurs in previously normal tissues and is referred to as metastatic.

It is found in:

(i) Hyperparathyroidism

Primary, due to:

a. Adenoma

b. Hyperplasia

c. Carcinoma (very rarely)

Secondary, due to:

a. Chronic renal failure

b. Renal tubular acidosis

c. Malabsorption states

d. Pregnancy and lactation

(ii) Carcinomatosis with or without skeletal involvement, especially with bronchial and breast cancer.

(iii) Myelomatisos

(iv) Vitamin D sensitivity, as in sarcoidosis and infantile hypercalcaemia
(v) Excessive administration of vitamin D

(vi) Paget's disease of bone (when immobilised)

(vii) Hypophosphatasia

(viii) Milk_alkali syndrome

(ix) Hypoparathyroidism (deposits in the basal ganglia)

Sites of metastatic calcification

(i) Kidneys, producing nephrocalcinosis which may lead to renal failure

(ii) Stomach

(iii) Lungs, on the elastic fibres of the alveolar septa

(iv) Blood vessels

(v) Cornea

4. In calculi (stones)

Many calculi include calcium salts among their constituents.

Calculi are found in:

(i) Urinary tract
   a. calcium phosphate
   b. calcium oxalate
   c. calcium carbonate

(ii) Biliary system
   a. calcium bilirubinate

(iii) Salivary glands

(iv) Pancreas

(v) Prostate

5. In neoplasia

Microscopic laminated calcified bodies _ calcospherites are found in association with:

a. Adenocarcinoma of the ovary

b. Papillary carcinoma of the thyroid
c. Meningioma (psammoma bodies)
d. Benign and malignant breast lesions
e. Oligodendroglioma

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**BOOKS**


**ARTICLES AND STUDIES**


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