

Integrative Approaches to Lyme Disease, Stealth Infections, and Inflammation

[ACAM](#)

May 5-7, 2006

Conference Summary and Notes

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For more information on ACAM, visit their web site [here](#).



Disclaimer: The information shared in this document is my own perspective of the information provided at the conference. **The information may or may not be entirely accurate and should be verified by the reader.** As much as I have attempted to provide an accurate account of the events of this enlightening conference, errors may exist throughout this document. **As always, you should consult your medical professional prior to any changes in your treatment program.** In conjunction with your medical professional, I encourage you to do your own research and create your own path to wellness. Information in this document is based on personal notes and recollection of conference presenters and may not be all-inclusive.

The information presented in this document is based on the topics presented at the conference. It is not an indication that I agree or disagree with any of the specific comments or treatment options. Many theories and ideas were discussed and, in some cases, the doctors themselves had differing opinions. **The content is provided for informational purposes only.**

The intent of the conference was to share information among practitioners. It should be assumed that not all interactions or contraindications were discussed and some advisories may be omitted.

To report any errors in this document, the author may be reached at Scott@BetterHealthGuy.com

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Daniel A. Kinderlehrer MD

Non-Antibiotic Approaches to Lyme disease

Garth Nicolson PhD

Multiple Chronic Intracellular Infections in Lyme disease: Diagnosis and Treatment Considerations

Joseph J. Burrascano, Jr. MD

Pearls of Wisdom in the Diagnosis and Management of Lyme disease

Patrick Quillin PhD,RD,CNS

The Role of Infection in Cancer

William Rea MD

Autogenous Vaccines for Recurrent Infections and Microbial Sensitivity

William Stuppy MD

Gastrointestinal Stealth Infections

Mark Levine MD

Tight Control of Vitamin C: Consequences for Health, Disease and Disease Treatment

Ritchie Shoemaker MD

Neurotoxins

Robert David Tufft MD

Occult Oral/Maxillofacial Infection and Chronic Fatigue Syndrome

Daniel Shoskes MD

Novel Therapies for Chronic Prostatitis: Role of Nanobacteria

Bobbi Lutack ND

Autoimmune Disease and the Primary Care Provider - A Naturopathic Perspective

Israel Rubinstein MD

The Immunomodulatory Effects of Macrolides in Human Diseases

Additional presenters also spoke in concurrent breakout sessions not listed above. The items above are from the main sessions.

A Little Fun with the Family

As a result of my web site, I have had the honor of making many friends in the Lyme family. This time was no different. Though there were fewer patients at this event, there were a few of us LymeNet contributors. I met "DrWiseA**" at the conference and went to dinner with her and two of her friends that also have Lyme disease. For privacy reasons, I won't mention their names here, but they were great fun. We went to a local Dallas restaurant called the "Magic Time Machine". I had never seen anyplace quite so....well....strange. The servers are all in costume. There was Zorro, Woody from Toy Story, Batman, Wonder Woman, and a host of other characters. Sounds fun, huh? Well, it gets interesting....

"DrWiseA**" made the mistake of saying that she was feeling a bit constipated. You may wonder why anyone would even make the comment, but for those of us with Lyme, these things just become regular....well, not if you have constipation I guess. ☺ The waiter latched on to the comment that was made and started announcing to the entire restaurant that "DrWiseA**" was constipated. Zorro shouted that maybe she needed to go to the salad bar and get some roughage to help her with her problem and get it all out.... It wasn't long before Wonder Woman came over to our table and asked "DrWiseA**" if things were moving along better now and offered her more salad. You probably have to have been there to have the laugh that we had, but it was really hysterical. That is until I asked where the restroom was and was run around the entire restaurant holding hands with Zorro while he announced that I had to go "tinky winky".... Welcome to Dallas, Texas! Humor is healing.

Personal Remarks

The ACAM Dallas conference on Lyme disease was an incredible learning experience and I feel blessed to have had the opportunity to attend. In less than six weeks, I have been enriched with a vast array of knowledge from three different conferences.

The first in early April was [Hope to Heal Lyme](#) which was an exciting event for patients with Lyme disease. Then a week later, I attended [Autonomic Response Testing](#) from Dr. Klinghardt. The works of Dr. Klinghardt resonate with me very deeply and I have felt much more empowered in addressing my illness as a result of several of his therapeutic options. This was the second conference of his that I have attended this year. Finally, I attended this ACAM conference on Integrative Approaches to Lyme Disease, Stealth Infections and Inflammation. This event was primarily focused on practitioners. I would estimate that well over 90% of those attending were practitioners and the number of patients was relatively small. Though this made the sessions more technical and in some ways a bit more difficult to fully grasp all of the presented detail, it was an amazing experience. It provided an opportunity for me to talk one on one with several of the well-known doctors helping all of us in the fight against Lyme disease and chronic infections.

I talked to Dr. Joe Burrascano for the second time in a month since I had also met him at Hope to Heal Lyme. He is a very kind and compassionate person. I relayed a story that I had heard recently at a Lyme support group from a man with Lyme disease. Dr. Burrascano had come up in the discussion and the man told the group how he had met Dr. Burrascano at an event once and was so very impressed by him. The man was not a patient of Dr. Burrascano and several other doctors were standing by trying to get a piece of Dr. Burrascano's time. He shared with us that Dr. Burrascano spent 20-30 minutes talking with him about his Lyme disease and was truly concerned. It was clearly a gesture of kindness that was very much appreciated. I thanked Dr.

Burrascano for being that person that took the time to share his kindness. I also got to briefly show Dr. Burrascano my web site which was exciting for me personally. ☺

I had the pleasure of meeting Kenneth Bock, the President of ACAM. I had met Dr. Bock's brother Stephen just a few weeks earlier at Hope to Heal Lyme. I am always impressed by the depth of knowledge that many of these practitioners have in understanding how the body works and how to address the many assaults that take place in it every second of every day. Having been to over 45 doctors in the past nine years, I cannot say that for most of them.

I also met Dr. Ritchie Shoemaker and talked one on one with him briefly. Dr. Shoemaker is one of the leaders in the country when it comes to mold and other biotoxin-mediated illnesses. I thanked him for providing his book and attended two sessions that he offered on mold and biotoxins. They provided another piece of the puzzle. I had been reading "Mold Warriors" in the weeks leading up to the conference, but hearing the discussions really shed light on some of the challenges that many of us face in getting well. In large part, genetics plays a significant role in how people react to exposure to biotoxins from Lyme disease, molds, or a host of other toxins.

I had an opportunity to meet Dr. Eric Gordon who practices in my neck of the woods in Northern California and is doing some work in the area of biotoxin-mediated illnesses specifically following the approaches outlined by Dr. Ritchie Shoemaker in the book "Mold Warriors". I am planning to get together with Dr. Gordon in the upcoming weeks to get another view of what may be happening inside my body. Though I feel that I am on a good path, it never hurts to have additional information. The more I know, the more empowered I feel to guide my course to wellness.

In terms of the Lyme community, so many of our doctors were present. I sat to the right of Dr. Steve Harris, a man who leaves no stone unturned in learning everything he can to help his patients and also the son of Nick Harris from [IGeneX](#), the lab that has shed so much light on my own condition. Directly in front of me was Garry Gordon. He is also full of information and I attended one of his sessions on genetics and RNA therapies. He poured me a glass of his own vitamin C mixture that he shared with a few of us around where he was sitting.

On the way to the airport, after I took my seat in the shuttle, Dr. Alan MacDonald and his wife entered and sat down behind me. Both were very nice and kind people. Dr. MacDonald had done an exciting presentation earlier in the day and it was an honor to meet him. I was first exposed to him through the Open Eye Picture's documentary [Under Our Skin](#), where he is one of the characters in the sample clips on their site. This is a good place for my plug for this important project as well. If you have not already contributed to it, please do so. It is critically important and the work that Andy Wilson and his team are doing will mean so much to all of us. To contribute, go [here](#).

I chatted with Dr. Robert Rowen and he provided me with a copy of his newsletter called [Second Opinion](#). I have read many such newsletters over the years and generally find them not to be all that useful, but as I read his on the plane on the way home, I found it to be full of useful and relevant information on dealing with chronic infections. I have already subscribed and look forward to more issues.

I felt a bit silly running around with my camera like a star-struck fan, but I did so anyway. I got my picture with Dr. Garry Gordon, Dr. Garth Nicolson, Dr. Ritchie Shoemaker and others. Unfortunately, my battery died right when I stood there next to Dr. Burrascano and Dr. Stricker waiting for the flash....the flash that never happened..... You'd think I was in Hollywood the way I tell the stories of my excitement in meeting these doctors, wouldn't you? Well, for me, these

folks have become the celebrities, the life-changers, and the people with much knowledge about my illness.

Conference Opening

Why do people get chronically ill? Often, there is a genetic component which is just bad luck. There are weak combinations with detoxification, sulfation, methylation, ATP production. There are genetic predispositions for most people. There are many toxic insults starting with vaccinations, mercury, aluminum, petrochemicals and tens of thousands of other chemicals that we are all exposed to. Illnesses are multi-factorial.

Dr. Raphael Stricker

“The Clinical Presentations of Lyme Disease: Making the Diagnosis and Initiating Treatment”

Lyme disease is considered rare by FDA and CDC, but it is not a rare disease. It is quite common. Many problems exist with diagnosis and treatment of Lyme disease.

Borrelia is mainly described as a spirochete but also takes a cyst/inactive form that can lie dormant in cells for months or years. This gives *Borrelia* the ability to create chronic infections.

- Over 1500 gene sequences
- 132 functioning genes compared with *T. Pallidum* has only 22
- 21 plasmids (three times more than any known bacteria). *Chlamydia* only has 7. Plasmids allow bacteria to respond to danger very rapidly. This allows *Borrelia* to adapt to host situations quickly.
- “Stealth” pathology – evades immune response

Borrelia evades the immune system via:

- Immune Suppression
- Phase and Antigenic Variation – spirochete vs. cyst form
- Physical Seclusion (intracellular and extracellular)
- Secreted Factors (enzymes that allow cell entry). Help bacteria enter into the body.

The nymphal tick is the most contagious and can be the size of a poppy-seed. This explains why the bite of the tick is often missed.

Tick saliva allows for feeding long periods without host detection. The most potent analgesic ever discovered is tick saliva. Companies are studying it to create a human product.

Bites around the head and neck cause more neurological symptoms. Still controversial but evidence seems to support this observation.

The main transport for ticks is deer. Deer population was 500,000 in 1900. In 2000, it was 35-40 million. May explain increase in Lyme disease. Birds are also a mechanism of transport for ticks and Lyme disease. They can fly long-distances which allows for the ticks to be carried to many places.

20,000-25,000 cases of Lyme reported per year. CDC admits that this is an underestimate by a factor of 10. AIDS cases are 40,000-45,000 per year. Lyme disease is five times more common than AIDS if you consider the underestimation factor acknowledged by the CDC.

There is a seasonal variation – May, June, July, and August are the most common on East Coast. In California, it is constant as there is little variation in weather.

Bob Lane did study in Mendocino country. He found the biggest risk was exposure to wood. Sitting on logs, gathering wood, sitting against trees, and sitting in litter are higher risk activities. The ticks that are found on wood are nymphal ticks which are the most contagious.

Stages of Lyme

Dr. Stricker provided a very simple definition of acute vs. chronic Lyme:

Acute (also called early localized, early disseminated): < 1 month since exposure

Chronic (also called late localized, late disseminated): > 3 months since exposure

Lyme can be classified by predominant symptoms: Musculoskeletal or Neurological

Only 70% remember a tick bite, probably less. Only 60% get an EM rash. Only 20-30% of those infected get joint swelling.

Distinctive Symptoms

Musculoskeletal: migratory joint pain, TMJ, heel pain, myoclonus (muscle twitching)

Neurological: visual migraine, bell's palsy, adie pupil (sluggish to react and gives different size pupils), acute psychosis, musical hallucination

Cardiac: palpitations, arrhythmias (AV block), pericarditis, heart failure. Cardiac presentation is more common on East coast than on West coast.

Sleep deprivation is a big problem with Lyme disease and an important aspect of treatment.

Lab Testing

CDC criterion is for surveillance, not diagnosis. CDC criterion applied to diagnosis is inappropriate.

ELISA/IFA – less than 50% sensitive. There is a large variation in lab proficiency. Valid test requires 95% sensitivity

Western Blot – highly sensitive, large variation in lab proficiency, criteria for positive test too stringent, men and women react differently. 5 positive bands on IgG required. Men tend to have an average of six. Women tend to have an average of 4. The Western Blot discriminates against women.

Lyme PCR – highly specific, narrow diagnostic window (acute), expensive. Bacteria are not in the blood. Blood PCR not sensitive. CDC says that PCR is not reliable and should not be done for Lyme disease.

CDC excludes bands planned for vaccine development, 31 and 34. The two most important bands are left out. It does not make sense to exclude these bands now that there is no Lyme vaccine.

Neurological Testing

Cerebrospinal Fluid – normal protein, no cells. Absent oligoclonal bands (helps to rule out MS). PCR often negative. *Borrelia* does not hang out in spinal fluid. It is in the brain.

Brain MRI Scan – positive in 50% with neurological Lyme. Focal white matter lesions. Non-specific findings. Resembles other demyelinating diseases (MS).

SPECT Brain Scan – inflammatory change in Lyme disease, frontal and temporal lobe lesions prominent, lesions resolve with treatment

PET Brain Scan – experimental. Dr. Brian Fallon at Columbia is working on this test. It looks promising.

Neuropsychological Testing – varies with test used, significant cognitive deficits may be present.

NK (natural killer) cells kill foreign invaders such as virus and bacteria. CD-57 is a marker in a subset of killer cells. Function is poorly understood. It is downregulated by Th1 cytokines (IL-2, IFN-gamma, TNF-alpha). CD-57 also found in nerve cells and T-cells. CD-57 are the CD-4 T-cells of Lyme disease. It is similar to monitoring for HIV.

Principles of Antibiotic Therapy

- Oral antibiotics useful for musculoskeletal
- IV for neurological Lyme disease
- Prolonged treatment may be necessary
- Rotate therapies

Treatment Options

- Oral – monotherapy, combination therapy
- IV – daily or staggered
- IM – Bicillin. Used in early days but now being rediscovered. Easier for insurance reimbursement and convenient.

Monotherapy

Oral – doxycycline and minocycline for early therapy. Covers *Borrelia* and *Ehrlichia*. They also have anti-inflammatory properties. Photosensitivity and GI upset are the major concerns. Augmentin/Amoxicillin are less effective but also have fewer side effects. You get what you pay for.

Combination Therapies

Macrolide (Biaxin, Zithromax) + Cephalosporin (Omnicef, Ceftin) – synergistic, well tolerated. Variable tissue penetration. Expensive. Biaxin and Omnicef are very useful for chronic Lyme. May need two years.

Macrolide (Biaxin, Zithromax) + Metronidazole (Flagyl) – kills cyst form. Good tissue penetration including brain. GI upset and neuropathy are major issues. Prolonged herxheimer reaction is not uncommon.

Intravenous (IV) Therapies

Rocephin (Ceftriaxone) – \$1500 per week down to \$700 per month with new generic. Once daily dosing with a port is generally utilized. Good CNS penetration. Liver toxicity is a concern. Use Actigall to help avoid issues with gallbladder.

Claforan (Cefotaxime) – twice daily dosing, colitis and liver toxicity

Doxycycline - prolonged infusion time, good tissue penetration. 4 hour infusion. May be useful in patients that fail IM Bicillin or IV Rocephin.

Zithromax – once daily dosing, limited experience

Herxheimer Reaction

Occurs with start of antibiotic therapy, mimics Lyme symptoms, and occurs due to lysing of organisms. Reactions are generally observed in 3-4 week cycles.

Co-Infections

Lyme treatment may not respond if co-infections are not treated. Need to test for all co-infections. You cannot treat Lyme without knowing about co-infections.

- Babesia / Piroplasma – Babesia microti most common. Sweating/flushing. Antibody testing or FISH better than PCR. Mepron/Zithromax, Flagyl/Zithromax, Lariam/Doxycycline, or Clindamycin/Quinine/Artemisia. Often not found in blood, but in tissue. Jury still out on Artemisia. WA-1, MO-1, EU-1 (Washington, Missouri, European) strains of Babesia
- Anaplasma – granulocytic. Used to be called HGE (human granulocytic Ehrlichiosis). Lyme-like symptoms. Anaplasma Phagocytophilum / Ehrlichia Ewingii. Treat with Doxycycline/Rifampin (for resistant infections)
- Ehrlichia – lone star tick, Ehrlichia Chafeensis, CNS, Lyme-like symptoms. Similar treatment as for Anaplasma. Ehrlichia works with Borrelia to increase symptoms. Co-infections are worse than with Borrelia alone.
- Bartonella – emerging. Bartonella henselae, quintana. Lyme-like symptoms. Bartonella rash like stretch marks. Quinolones (best), doxycycline, macrolides.
- Rickettsia/Coxiella
- Tularemia – east coast but uncommon

Conclusion

- Chronic Lyme difficult to diagnose and treat
- Highly variable symptoms
- Lab testing unreliable
- Treatment requires patience and persistence

Dr. Stricker compared the current state of Lyme treatment to open-air therapy for tuberculosis in the early 1900's. Lyme disease needs much more research.

Q&A with Dr. Stricker

Q: How do you know when you are done with treatment?

A: There is no test that shows the disease is gone. Clinical indicators must be looked at. CD-57 NK-cells are a good indicator of how the patient is responding. CDC says 30 days will cure everyone. Often months or longer are required to get well.

Q: What are the adjunctive therapies?

A: Anti-inflammatories (Celebrex), sleep (Elavil 5-10mg), Cymbalta and Lyrica for neuropathic pain

Comment: Th1 disease from CD-57 which are decreased by Th1 cytokines. Th1 is dominant in Lyme disease. No good tests for the cytokines activity.

Q: What about the Bowen test?

A: Dr. Stricker mentioned that he has in fact seen negative tests from Bowen. It is an interesting lab. They are doing diagnostic testing as research lab. Does serve a purpose. Need to look at other certified labs like IGeneX, MDL, Immunosciences in addition. Mentioned Darkfield microscopy – Andy Wright in England. Not sure how to interpret.

Q: Most ALS, Parkinson's, MS have positive Western Blot from IGeneX. The doctor asking the question had tried all treatments. Nothing seemed to be working. What might work?

A: ALS is hard to treat if Lyme-related. The horse is out of the barn and neuro-degeneration can be hard to reverse. Many people do get better with treatment however.

Q: How can you test for MO-1 strain of Babesia?

A: No lab that can test for MO-1. WA-1 is now seen in Tennessee, Missouri, Virginia. They may be cross-reactive which means that they may appear on existing tests, but this is not known. If Babesia is suspected, a clinical experiment may be useful.

Q: Can Borrelia infect stem cells?

A: Not known

Q: Can you get rid of Lyme disease?

A: Most bacteria are different from viruses. We should be able to get rid of them. Whether or not they are ever completely gone is debated as there is no test that can show this with any level of certainty.

Q: How frequently do you rotate treatment?

A: Cover several cycles of the organism's life cycle with a treatment – at least 3 months of one regimen before rotating. 3 months is at least 2 cycles of the replication.

Q: What about person-to-person transmission?

A: That is a loaded question. One practitioner was brought up to medical board for recent answers on this topic. There is circumstantial evidence including sexual transmission and other bodily fluids. Assume it can be transmitted via direct contact from partner. The one without the tick exposure is often not sick but will often test positive. Do not get well until both partners are

treated. Person-to-person transmission is very controversial. We may be missing a major venereal disease of this century.

Q: Should you pre-treat with antibiotics before testing?

A: Some practitioners do this. It increases sensitivity. May not be practical but can be valuable.

Q: How do you avoid gallbladder disease with Rocephin?

A: With Actigall, rate of disease with Rocephin is < 10%. Gallbladder removal may be result in the removal of a focus of the infection. Often, people feel better after the gallbladder is removed.

Q: What is your success rate with best regime?

A: 70% of patients get better. Cannot define as cure but become functional and return to previous life/work. They are no longer impacted by disease.

Dr. Daniel Kinderlehrer

“Non-Antibiotic Approaches to Lyme Disease“

Dr. Daniel Kinderlehrer was someone that I had not been exposed to prior to this conference. He presented on non-antibiotic approaches to Lyme Disease. He shared that he himself has Lyme disease and so did his daughter. The reason that I found his discussion of interest is that I firmly believe that few will recover from chronic Lyme disease with antibiotics alone. I am sure it has happened, though I have not personally seen it myself. It takes much more. It takes a multi-factorial approach. Fortunately, many of the ACAM doctors know this and practice in this way and recognize that antibiotics alone are likely not a cure for chronic Lyme disease in most infected persons.

He talked about AIDS and how it was the groundswell of people that really made it an issue of focus. The same thing will happen with Lyme disease. Patients and doctors must be advocates.

Via two-tiered method of testing (ELISA and Western Blot), there are about 25,000 cases reported annually to the CDC. This is likely off by 10:1 according to the CDC. In Georgia, one study felt like the numbers were off by a factor of 40:1 which is one million new cases per year of Lyme disease. There is no doubt in his mind that this disease is an epidemic. He struggles everyday to try and understand how that seemingly apparent fact is lost and ignored by many.

75% of cases are in the Northeast, but Lyme disease has been reported in every state except Montana - where patients have to leave Montana to get diagnosed and treated.

Positive test results are also often underreported or filtered out at various layers between the patient and the CDC.

Lyme disease is not just an infection. It is a multi-factorial illness with several key areas:

- Immune imbalance
- Communication dysregulation
- Neurological impairment
- Endocrine malfunction
- Gastrointestinal damage and dysbiosis
- Toxin-mediated impairment
- End-organ damage

- Neuropsychological impact

If a patient is seriously ill, antibiotics will make them worse without doing the foundational work first. Dr. Kinderlehrer first builds the patient up as well as knocking down the bugs.

For acute Lyme, six weeks of high-dose antibiotics should be a good option. If infected for less than one year, he will treat aggressively with antibiotics. The focus of this discussion was on those with Lyme for 1 year or more. Most patients have had Lyme for years.

Strategy

- Build a foundation
- Suppress the infections
- Maintain homeostasis

Building a Foundation

Endocrine Dysregulation

Endocrine dysfunction is observed when the entire hormonal system becomes imbalanced as a result of chronic infections.

- Inflammatory cytokines increase. Initially observe a Th2 response that shifts to a Th1 response over time.
- Leads initially to increased cortisol and lower DHEA.
- Decrease in conversion of T4 to T3. Tests are usually normal, but patients are often hypothyroid.
- Increased prolactin
- Decreased LH/FSH (luteinizing hormone, follicle stimulating hormone)
- Decreased testosterone (free)
- Decreased Growth Hormone
- Decreased ADH levels. Complaints of urinating a lot related to polyuria.
- Decreased insulin sensitivity
- Increased fat cell mass
- Increased aromatase and estrogen increase

HPA Axis (hypothalamic-pituitary-adrenal axis) – adrenal insufficiency, growth hormone deficiency, ADH deficiency (salt may be used), GnRH (gonadotropin releasing hormone), FSH, LH deficiency, gonadal deficiency, hypothyroidism, insulin resistance. Hormones must be balanced to fight the infection.

50-75% of patients have low cortisol levels and adrenal insufficiency. People under stress should have elevated cortisol to mount an immune response if functioning well. If there are not adequate circulating levels, patient needs adrenal support. Low doses of Cortef can be useful. Low doses do not suppress the immune system.

Candida (Can-did-a) Related Complex

Over colonization of Candida leads to local inflammation of mucosal surfaces, release of endotoxins, sensitization syndromes. Lyme patients are at high risk. Sometimes uses low-dose Diflucan which often results in improvement.

Detoxification

- Endotoxins
- Cytokines
- Mycotoxins (mold, Candida)
- Xenobiotics
- Heavy Metals

Uses Cholestyramine but finds that most patients do not tolerate it. He finds that there are better ways to detoxify. Dr. Sam Donta claims he has isolated a neurotoxin from Borrelia and has patented it to create a test, but it is not yet proven.

Candida can release > 50 types of mycotoxins. Living in a house with mold can cause same symptoms as Lyme disease.

Recommends infrared saunas to help get rid of chemicals and xenobiotics. Toxic syndrome symptoms overlap with Lyme. It is likely the same cytokine / Th1-dominant pathways. Sauna is highly effective and will be extremely helpful with Lyme.

He tests for heavy metals in all Lyme patients. 75% come back elevated. Mercury and lead are the most common culprits. Low amounts impact endocrine and other bodily systems.

Gastrointestinal Issues

- Infection – often see Lyme, mycoplasma, Bartonella, Ehrlichia in gut biopsies.
Parasites, worms
- Inflammation
- Malabsorption
- Leaky Gut Syndrome
- Dysbiosis
- Candida Overgrowth

GI tract creates 90% of serotonin. Important to address any gut infections or dysbiosis.

Suppress Infection

Pharmaceutical

Once people have chronic Lyme (1 year or more), he rarely sees someone cured with antibiotics. Co-infections often need to be dealt with. Downstream effects undermine capacity to fight the infection. All chronic Lyme patients have “neurological Lyme”. He does not agree that antibiotics are needed for all with neurological Lyme. Will use on a case-by-case basis.

Non-Pharmaceutical

- Oxidative Therapies
- EMF technology – Rife
- Herbal Remedies
- Energetic interventions

Oxidative Therapies

HBOT – requires numerous dives. 2.4 ATA required. HBOT is best with concurrent antibiotic therapy. It is a large commitment of time and money. Best effects are within 1 year window. When stopping, there are large relapse rates.

Ozone – direct IV infusion (not recommended), autohemotherapy (blood taken out, ozone injected, transferred back in), rectal insufflation, steam cabinet, autohemologous immunotherapy (blood or urine ozonated and injected IM to stimulate an immune response). Urine immunotherapy, intra-articular injection.

Hydrogen Peroxide – IV (don't do it), H₂O₂ baths (2-4 bottles of 3% H₂O₂ with 2 cups of Epsom salts 2-3 times weekly). Oral H₂O₂ may control Candida but has potential damaging effects to GI mucosa.

Ultra-violet blood irradiation – not as effective by itself but more effective with ozone. Blood is withdrawn, exposed to UV light, and returned to the patient's body.

Oxidative therapies increase tissue oxygen which leads to ATP production. They modulate inflammation through cytokine modulation and immune stimulation increased. Oxidant has antioxidant function which actually decreases stress. High oxygen tension kills microbes including Borrelia. Free radical generation assists in killing microbes.

Ozone plus ultra-violet combination seems to be most effective. His youngest daughter with Lyme after six months on doxycycline and remission had a relapse. She was treated with ozone and UV 1-2 times per week for 18 months. Daughter subsequently had a child and through cord blood and other tests, baby is PCR negative.

EMF Generators / Rife Machines

- Electromagnetic Field Generator
- Based on principle of harmonic resistance
- Specific frequencies lead to Lysis of bacteria and other microbes

Radio wave frequencies not X-Rays. They will not harm you. They are harmonic ranges. Doug MacLean – entire family was sick with Lyme. Was accidentally sent Borrelia and played with rife machine to find frequencies that broke open microbes. 2-4 years of treatment and all four in the family are in remission now since 1995. Only people known to be “cured” using this technology but many other people improve.

Another person not named but likely known by most people reading this worked in a lumber mill. He built his own device because his wife was so sick and she got better. People from all over

wanted to use the machines. He builds the machines on nights and weekends and sells at his cost.

Many people go off antibiotics and continue to improve. Most continue to treat periodically. 2 minutes per frequency every two weeks. As herxheimer reactions lessen, exposure can increase. There are many generators on the market.

[Lyme Disease and Rife Machines](#) by Bryan Rosner
The Cancer Cure that Worked by Barry Lynes
Politics and Healing by Dan Haley

Herbal Antimicrobials

- Prima Una de Gato (Cat's Claw)
- Teasel Root
- Artemisiae
- Cumanda

Dr. Lee Cowden had a very detailed holistic regimen to treat the people in his study which people often misinterpret and believe that it was a study with the sole use of Cat's Claw. He was treating the whole patient with detoxification, metals, etc., not just Cat's Claw. The study was not to determine impact of Cat's Claw but a broad-based regimen compared to antibiotics. Lee Cowden is currently writing an article that will be in Lyme Times. To subscribe, go [here](#).

Cat's Claw

Samento. TOA-free is best. TOA has adverse central nervous system effects and counteracts immune stimulation. Cat's Claw is immunomodulating and anti-microbial. It is so strong that some people cannot tolerate 1/10 of a drop. To take 1/10 of one drop: add 1 drop to 10 oz of water and take 1 ounce of the prepared solution. He suggests increasing to 20 drops twice a day on an empty stomach.

Teasel Root

Helps the liver and kidneys, promotes circulation, and strengthens bones and tendons. He recommends the same dosing as Cat's Claw. One can have significant herxheimer reactions. There is no known toxicity level.

Artemisiae

Active ingredient is Artemisinin. It is used in China for malaria. Well-documented effects. Clear benefit in Babesiosis. Bill and Melinda Gates Foundation has found a way to synthesize it. Possible benefit against the cyst form of Borrelia. 200 mg twice daily on empty stomach. Should be given with grapefruit juice or pulsed 3 weeks on 1 week off.

Cumanda

Antibacterial, antifungal, antiviral, antiparasitic, anti-inflammatory, modulates the immune system. Also has no known toxicity. It can be used with or without Cat's Claw. According to Dr. Lee Cowden, it is effective against all co-infections. <http://www.nutramedix.cc>

Other Interventions

Items which have shown some benefit include:

- Olive leaf
- Oregano oil
- Colloidal Silver
- Bromelain
- Proteolytic enzymes
- Vitamin C and Salt

Items for which Dr. Kindlehrer has less direct experience but may have helped some people include:

- Bee venom
- Carnivora
- Garlic
- Ginger
- Marshall Protocol

With Vitamin C and salt, people are getting herxes and improving through a mechanism that is unclear.

Energetic Interventions

Energetic interventions include:

- Acupuncture
- Energy machines
- Energy-based exercises such as yoga, Tai Chi, Qigong
- Homeopathic remedies, Sanum remedies
- Homeopathic vial elimination technique

For neurotoxin binding, Dr. Kindlehrer uses bentonite instead of cholestyramine.

Homeopathic Vial Elimination Technique

- Originally developed by chiropractors
- Made known by Dr. Devi Nambrupdipad (NAET) for elimination of allergies
- Dr. Carolyn Jaffe and Judith Mellor (JMT) for elimination of pathogens
- Refined by Dr. Peggy Creelman for treatment of Lyme – www.omanm.org

Herxheimer Reactions

Need to push the body to an alkaline state with greens in the diet, lemon juice, Alka-Seltzer Gold. Also use bentonite, Epsom salts and baking soda baths, and Burbur from NutraMedix.

Thoughts and Observations

Lyme is the most stress-sensitive illness. Sleep disorders require aggressive treatment. Stress results in a failure to respond to treatment, major relapses, and recurrence of symptoms.

Need a holistic / integrative approach and must treat the whole person. Antibiotics alone do not generally cure chronic Lyme.

We need to learn to live in harmony with Lyme. Many people are infected and many may have asymptomatic Lyme.

Q&A

Comment from practitioner: IV Hydrogen Peroxide. He was a doctor that had given 32,000 IV hydrogen peroxide treatments. There are 96 doctors that are doing this. That is 2.8 million treatments since 1998. The practitioner claimed that there have been zero adverse outcomes. Trust your experience. Don't live in fear.

Comment from Dr. Warren Levine – mentioned the importance of endocrine function and believes that this is one of the most important issues in chronic Lyme and co-infections.

Dr. Garth Nicolson

“Multiple Chronic Intracellular Infections in Lyme disease: Diagnosis and Treatment Considerations”



Dr. Nicolson's web site is <http://www.immed.org>.

Chronic viral, bacterial, and fungal infections could be the cause of chronic illness. Genetic predisposition plays a role. Chronic infections can also be co-factors with other factors such as chemicals and heavy metals. They can be opportunistic and occur when immune system function is depressed. 20% of Chronic Fatigue Syndrome patients are actually Lyme disease patients. Co-infections occur in both Lyme disease and Chronic Fatigue Syndrome patients.

Some of the chronic infections include:

- Mycoplasma
- Chlamydia
- Rickettsia
- Brucella
- Borrelia
- Coxiella
- EBV
- HHV6
- CMV
- Enterovirus
- Hepatitis C
- Fungi

There is significant overlap between the various chronic infections.

Pathogenic intracellular infections include mycoplasma and Borrelia. Once in the cell, they damage cellular structures with release of ROS (reactive oxygen species) and other toxins. They carry cell antigens with them and can stimulate an autoimmune response. One reason for autoimmunity may be intracellular infections that get loose and carry host antigens with them which the immune system then reacts to.

A single infection does not cause chronic illness. It is a combination of many things that causes chronic illness. Over ½ of chronic asthma patients have chronic infections. These are often observed also in cases of Rheumatoid Arthritis.

The old thinking was that only infection "A" causes disease "A". The new thinking is the multiple infections, genetic predispositions, immune abnormalities, and toxic exposures lead to illness.

Sources of Chronic Illness

- Respiratory Disease – chronic asthma, chronic bronchitis, chronic pneumonia
- Rheumatic Diseases – various arthritic conditions
- Fatigue Syndrome – Gulf War Syndrome, Chronic Fatigue Syndrome
- Gastrointestinal Disorders – chronic IBD (irritable bowel disorder), ulcerative colitis, chronic esophagitis
- Sinus Disorders – sinusitis, otitis media
- Cutaneous Disorders – rashes, dermatitis
- Autoimmune Diseases – MS, ALS, SLE (Lupus), Grave's Disease
- Periodontal Diseases – gingivitis, abscess, dental infections
- Cardiac Disease – endocarditis, myocarditis, atherosclerosis
- Immunosuppressive Diseases – HIV, AIDS, cancers

Dr. Nicolson recommends hydrogen peroxide baths for years at a time.

90% of ALS patients have mycoplasma infections. Often observe species that are capable of passing into nervous system.

Ticks may have 30-40 infectious agents. There may also be many unknown infections that are still to be identified. Some very compelling numbers were presented on the various microbes that are found in ticks.

Infection Statistics

The following numbers were presented based on the work of Dr. Nicolson. The percentages given below represent the **approximate percentage of ticks that harbor the listed organism**. It was noted that this is an extreme case. Where not stated, the numbers include all species.

Organism	Prevalence
Mycoplasma	25-70%
Borrelia Burgdorferi	18-40%
Ehrlichia	10-50%
Bartonella	40-70%
Babesia	8-20%
Chlamydia	Not Known

Table 1: Microbes Observed in Ticks

Now, if the infected person has Borrelia, the numbers below represent the **likely incidence of various microbes**:

Organism	Prevalence
Mycoplasma	45-70%
Ehrlichia	10-35%
Bartonella	25-40%
Babesia	8-20%
Chlamydia	Not Known

Table 2: Incidence of Co-infections in the Borrelia positive patient

Of 600,000 Gulf War veterans, 200,000 have now reported serious illnesses or are on disability. It was found that Gulf War illnesses crept up in spouses and children after father returned from Gulf War. There is also some indication that families with Lyme have autistic children. Lyme may be related to autism in children. Both Lyme and mycoplasma are found in autistic-spectrum disorder patients. When properly treated, they often recover.

The signs and symptoms of Gulf War Illness closely resemble FMS/CFS/ME.

The following shows the **percentage of people with mycoplasma infections based on their diagnosed conditions:**

Condition	Prevalence
CFS/ME	50%
Gulf War Illness	40%
Fibromyalgia / FMS	60%
Rheumatoid Arthritis	45%
Lyme disease	65%
ALS	90%

Table 3: Percentage of Mycoplasma Infection by Condition

MDL studies were consistent with Nicolson studies in that 65% of people with Lyme have mycoplasma infections.

In Gulf War Illness, mycoplasma fermentans is observed in over 80% of the patients. In CFS/ME, mycoplasma pneumoniae is observed in about 60% and mycoplasma fermentans only about 45%.

The most common mycoplasma in the United States is mycoplasma pneumoniae. In Europe, it is mycoplasma hominis.

The likely exposure for Gulf War Illness in troops was from vaccines. They did find mycoplasma contamination in vaccines given to veterans. The United States government holds a patent on mycoplasma.

Studies seem to show that the number of infections that a person has may be more important than the type in terms of the severity of the signs and symptoms. The more co-infections that a person has, the worse off they will be. The sickest patients tend to have the most number of infections.

Treatment Options

Antibiotic

Several six week cycles of 1-2 antibiotics: Doxycycline, Ciprofloxacin (Cipro), Minocycline, Amoxicillin, Ceftriaxone, Cefdinir (Omnicef), Levofloxacin (Levaquin), Erythromycin, Azithromycin (Zithromax), Clarithromycin (Biaxin).

Nutritional

Dr. Nicolson suggests immune enhancement products and natural anti-microbial products. Sublingual B complex, C, E, CoQ10. zinc, chromium, magnesium, selenium.

Oxidative Therapies

Oxidative therapies may suppress the growth of the organisms but are not likely to be cytotoxic to the infections. Hyperbaric oxygen, hydrogen peroxide baths (very safe and inexpensive), ozone therapy, IV Peroxide therapy (can be dangerous).

Other Recommendations

Reduce sugar, caffeine, alcohol, fats. Increase natural foods, vegetables, fruits. Need to consume significant amounts of probiotics. Control yeast and bacterial infections. 2 hours after antibiotics, take large doses of probiotics. Moderate physical activity and dry saunas are recommended.

Lyme Disease and Fatigue

Intracellular infections increase ROS (reactive oxygen species) which damage membrane lipids and DNA. Mitochondrial membranes and DNA are sensitive to ROS. One supplement that Dr. Nicolson has studied to restore mitochondrial function is called "NT Factor". "NT Factor" is consists of phosphoglycolipids and microencapsulated friendly bacteria. It serves as a growth media for friendly bacteria. NT Factor helps to stabilize membranes by replacing oxidized lipids. Found significant decrease in fatigue (40%) in first 60 days. Fatigue is a major problem for people with Lyme disease. "NT Factor" may be a way to overcome.

Most Lyme patients have multiple infections. These are important to identify and treat. Lyme disease may have multiple origins including toxic insults from trauma, infections, chemical and other toxins. These result in immune suppression and make one more susceptible to tick-borne diseases. Diet is important in the management of Lyme disease and Chronic Fatigue Syndrome.

Dr. Joe Burrascano

“Pearls of Wisdom in the Diagnosis and Management of Lyme Disease“

This was my second presentation from Dr. Burrascano in less than six weeks. I always find his discussions interesting. I also got an opportunity to talk with Dr. B (as I will refer to him for the rest of this section and as many of us refer to him in discussions) and to show him my web site. That was fun. He is a very passionate and compassionate person. I shared the story of one of my friends with Lyme disease that had met him at an event some time ago. There were several doctors standing around wanting to talk with Dr. B and yet he spent 20-30 minutes talking to my friend and took genuine interest in his situation. I wanted Dr B to know how much stories like this mean to people and I thanked him for being so kind.

Do not think of Lyme as *Borrelia Burgdorferi*. Think of it as the results of the bite of an infected tick including all the related infections.

Stages

- Stage I – Acute - at or before onset of symptoms, can be cured if treated promptly
- Stage II – Disseminated – multiple body systems impacted, more difficult to treat
- Stage III – Chronic Lyme – ill for one year or more. Immune systems starts to break down and allows co-infections to flourish, serological tests are much less reliable, treatment must be more aggressive and of much longer duration.

Why are patients more ill? The longer you are sick, the higher the spirochetal load. They find protective niches in CNS, skin, etc. They like the skin because they do not like high temperatures. There is development of alternative forms. Immune suppression and evasion occurs. Co-infections become a bigger issue.

Immune Suppression

Borrelia invades and kills B and T-cells and inhibits those cells that are not killed. Decreases the number of CD-57 cells. The longer the infection is present, the more suppressed the immune system becomes.

Hormonal Dysfunction

Hormonal dysfunction is the number one associated condition. Tremendous benefits are often observed when addressed. There are disturbances of the HPA axis (hypothalamic-pituitary axis). Hormonal dysfunction creates significant debility in Lyme patients.

Symptoms may include loss of libido, lack of stamina, intolerance to stress, weight gain, hypersensitivity to the environment, persistent encephalopathy even with Lyme treatment.

Neurally Mediated Hypotension

Dehydration, autonomic neuropathy, pituitary insufficiency. Diagnose with a tilt table test performed by a cardiologist, and pituitary function tests.

Neurotoxins

Neurotoxins activate cytokines. They block hormone receptors. Blood levels may not represent tissue levels. Testing includes VCS (visual contrast sensitivity), insulin resistance, or cytokine measurements. Treat with bile acid sequestrants.

Encephalitis

Encephalitis can be observed on SPECT or PET scan. Areas of hypometabolism and decreased blood flow. Testing can be done serially to reflect clinical changes. Testing can show physical abnormality vs. psychological issue. Proves the symptoms are real.

Testing

ELISA – not useful. False negative (30-50%) and false positives (5-10%) occur. Do not use it.

Western Blot – more qualitative, much more useful.

Need two bands specific for Lyme. 18, 21-24, 31, 34, 39, 83, 93 specific for Borrelia. 41 is seen in other spirochetes and all others are non-specific. The more bands, the more certain of the diagnosis. The more ill, the weaker the serological result which means that the sickest people often are the ones that test negative. With treatment, 36% will show seropositivity as treatment ensues. It is difficult to produce and interpret the results. Results can change with subtle changes in lab conditions. There are many types of Borrelia and the bands may not match the species that the patient has.

Spinal Tap – only 9% with active Lyme meningitis have a positive test. Only rules out other conditions.

PCR – great when positive for Borrelia but does not live in blood. Need synovial biopsy. Need repeated testing from multiple sources including blood, serum, urine, CSF, bone marrow, and tissues.

LDA – urine antigen capture also known as reverse Western Blot. Positive is great. Negative does not mean you do not have Lyme.

CD-57 – very happy with this test. Counts go down with chronic Lyme. Test can be used to predict relapse. Normal is > 200. <20 severe illness. 20-60 most common results in chronic patient. >60 indicates that Lyme activity is minimal. Must use LabCorp. If CD-57 improves but patient still sick, look for co-infections.

Subtle daily variations are observed in Lyme. 4pm was the time that they could most often find the bugs under a microscope.

Treatment

Routes of Administration

No response to placebos. Slight benefit observed from orals. IV is most effective. IM Bicillin with adequate dose may be close to IV therapy.

Indications for IV Therapy

- Abnormal spinal fluid (WBC or protein)
- Synovitis with high ESR
- Sick for > 1 year
- Over 60
- Pregnant – especially acute disseminated within first trimester
- Acute carditis
- Prior use of steroids
- Failure or intolerance of oral therapy

Various Forms

Need to use appropriate combinations to address the various forms of *Borrelia* simultaneously.

- **Spirochete** – has a cell wall – use penicillins, cephalosporins, Primaxin, vancomycin
- **L-Form** – no cell wall – tetracyclines, erythromycins
- **Cyst** – Metronidazole (Flagyl), Tinidazole, maybe Rifampin

Pharmacology – therapeutic drug levels are needed. Need BOTH extracellular and intracellular drugs. Need drugs for humors and tissues and that treat all the forms of *Borrelia*. Need to look at half-life of drug. Measuring drug levels is very important with chronic Lyme as they may not be absorbing the drug. Should be viewed as a fundamental test.

Penicillins and Cephalosporins

These are cell-wall agents. Extracellular, spiral forms. With cell wall drugs, you need sustained levels for 72 hours.

- Amoxicillin + Probenecid, Augmentin XR (3000-6000mg daily)
- Cefuroxime (Ceftin) – 2000+ mg daily
- Cefdinir (Omnicef) 1200 mg daily
- May need to add Probenecid 1000-1500mg daily

Erythromycins

These are ribosomal agents. They target tissues and intracellular L-Forms.

- Azithromycin (Zithromax) – 500-1200mg daily. Many treatment failures.
- Clarithromycin (Biaxin) – 1000-2000mg daily. Better results but more difficult to tolerate.
- Telithromycin (Ketek) – 800mg daily.

Zithromax does not seem to work orally. Biaxin is much better. Cannot do blood levels on these drugs. Ketek is by far the best for Lyme. Have to watch many factors including liver enzymes, heart, and others. Those on Ketek will potentially have severe and prolonged Herxheimer.

Tetracyclines

These are ribosomal agents. They target tissues and intracellular L-Forms. They are only bacteriocidal at high doses. With tetracyclines, it is best to have large spikes. IV is more

effective for tetracyclines. Tetracyclines are intracellular and extracellular but are bacteriostatic not bacteriocidal unless at very high doses.

Tetracyclines are difficult to tolerate: GI, vertigo, sun sensitivity. Minocycline is a good drug on paper but disappointing in practice. Tetracycline is not used often as it has to be given on empty stomach and hard to tolerate at that level.

- Doxycycline – 400+ mg daily – must check blood levels
- Minocycline – 300-400mg daily
- Tetracycline – 1500-2000mg daily

Other Drugs

These are an attempt to attack the cystic form. Have to target DNA. Flagyl and Tinidazole. Tolerability may limit dose. Tinidazole can be easier to tolerate. Rifampin is surprisingly easy to tolerate.

- Metronidazole (Flagyl) – 500-1500mg daily. Toxicity and tolerability may limit the dose or duration of treatment.
- Tinidazole (Tindimax) – 1000mg daily
- Rifampin – 600mg once per day. Gentle and useful in combination therapies dealing with co-infections

With Metronidazole, you need at least 2 weeks.

Need to use antibiotic combinations that address intracellular and extracellular compartments, fluids and tissues, and all forms of Borrelia.

Bicillin-LA

Deep injection, long-acting. Efficacy is close to IV.

Must be Bicillin-LA. 1.2 million units 3-4 times per week. Better for yeast issues since it does not go through the digestive tract. Need to take for 6-12 months. If tolerated, patients generally do very well.

IV Therapy

Rocephin is the most used. 2 grams twice a day for 4 days in a row each week. Appears to be more effective than 2 grams per day for 7 days a week. Spirochetes regenerate every four weeks. Can be used with a peripheral line. Use Actigall to prevent gallstones. Did PCRs and 4 out of 5 showed Borrelia in the gallbladder. Often people feel better when gallbladder removed.

Other options for IV therapy include:

- Claforan – 4 to 12 grams daily. Every eight hours or continuous infusion
- Doxycycline – 400mg daily via central line
- Zithromax – 500mg daily via central line
- Vancomycin – 1000mg every 12 hours via central line
- Primaxin – 1500-4000mg daily. Every 6 to 8 hours via central line

Treatment Issues

- High doses are needed and blood levels should be confirmed
- Antibiotic combinations are needed
- Must check for co-infections and immune status and treat
- May need to rotate regimens based on response
- Do not change protocol too quickly.
- Infection may persist in chronic Lyme even with treatment
- Relapses do occur and more treatment may be needed
- Repeated or prolonged treatment may be required
- Signs of persistent infection include continued fever, synovitis, symptom flares in four week cycles, migrating symptoms, PCR positivity, low CD-57 counts
- Continue treatment until all active symptoms are clear for six or more weeks

Typical Regimen

- **Orally** – Ceftin + Biaxin **or** Augmentin XR + Ketek
- **Injection** – Bicillin LA + Biaxin
- **IV** – Rocephin + Ketek **or** Vancomycin + Biaxin

Treatment Course

Rate of recovery has to do with the Borrelia cycle and a stronger drug does not speed up the recovery process. It is a function of the recovery of the host. The goal is to find a working treatment regimen and stay on it long-term. One should only change if there is a plateau. Do not treat lightly or you may create stronger bugs.

Expect symptom flares every four weeks. Over time, see stepwise improvements. Do not change treatments every few weeks. Give at least six weeks and ideally three months before changing protocol.

There must be a progressive increase in exercise. Aerobic may be too much but weights/sculpting is ideal. **A full recovery will not occur without exercise.**

Co-infections

Co-infections are nearly universal in chronic Lyme. Symptoms are more vague and overlapping. Different syndrome pictures are observed than expected with either infection alone. Diagnostic tests less reliable. Lyme treatments do not treat Babesia or Bartonella. Co-infections are one reason for “treatment resistant” Lyme.

Bartonella

Bartonella is more prevalent in ticks than Borrelia. These are clinically different than the Bartonella species observed in Cat Scratch disease. Tests are insensitive. May miss up to 80% of clinically diagnosed patients. Can test blood, spinal fluid, or tissue biopsy.

Encephalopathy, trouble sleeping, seizures, anxiety, irritability, gastritis, tender subcutaneous nodules, sore soles, AM fever, light night sweats, light sensitivity, sound sensitivity. CNS

symptoms are generally out of proportion to the physical symptoms. If stopping antibiotics and have a quick relapse, it is more likely a co-infection, not *Borrelia*.

May appear as *Bartonella* rash which looks like stretch marks. Red bumps that may form scabs.

Levaquin is the drug of choice for *Bartonella*. May want to add a proton pump inhibitor. Cell-wall drugs are ineffective alone. May need to add a fluoroquinolone. Erythromycins are ineffective and may inhibit the effective of fluoroquinolones. Rifampin and Metronidazole may be alternatives. Doxycycline response is generally poor. Need to treat for 1-3 months if tolerated.

Babesia

Also called piroplasms. 13 different species of *Babesia* exist. Can only test for two (*B. microti* and WA-1). Even with negative test, empiric treatment may be appropriate. If someone gets sick right away after a bite, co-infection is likely. Lyme takes time to make a person sick after infection. Infection is immunosuppressive. *Babesia* renders Lyme more severe and more difficult to treat. May also lead to organ damage. Marked night sweats which may cycle every few days, air hunger and cough, severe persistent headaches, unrelenting fatigue, off balance – not vertigo.

Several methods of testing but all are low yield. Simple blood smear is only useful in first two weeks. Enhanced smears such as buffy-coat or prolonged scanning can be used. Florescent In-Situ Hybridization Assay (FISH) is a florescent-linked RNA probe which increases sensitivity 100-fold over conventional smears. PCR and serology are also available.

Babesia is a parasite and thus antibiotic treatment does not work. Can be treated while on other Lyme medications. Clindamycin and Quinine are rarely used. Mepron 5cc twice daily with Zithromax 600mg daily for 4 to 6 months. Never take doxycycline with Mepron. It may reduce the effectiveness of the Mepron. Malarone six tablets daily. May add Bactrim DS 2-4 daily or Flagyl 750-1500mg daily. Artemisia or artemisinin but do not take with Co-Q10.

Mepron inhibits utilization of Co-Q10 by the parasite. Supplementing it back is counter to the mechanism of action of the Mepron.

Babesia patients often hyper-coaguable. Treating usually resolves coagulation issues.

Ehrlichia

Ehrlichia is less common than other tick-borne infections. Has both acute and chronic forms. Acute form may cause a spotted rash but rarely. Abrupt onset, high fever, muscle pain, headache, low WBC count, elevated liver enzymes. Chronic form – headaches, muscle soreness, persistent leucopenia. Test with serology, PCR, or smear. Treat with doxycycline, fluoroquinolones, or Rifampin for 2 to 4 weeks.

Mycoplasma

Known as the “Chronic Fatigue” germ. More common in immunosuppressed. Testing with serial PCR; still insensitive. Treat with doxycycline or fuorouquinolones with the addition of Plaquenil. Erythromycins and Rifampin with Plaquenil may be ok but are less effective. Treat the underlying Lyme and support the immune system. Treatment may be needed for months or years.

Co-infections

Chronic Lyme and immunosuppressed patients may also have: Chlamydia, HHV6, CMV, other herpes viruses, yeasts, and likely other infections.

Main Symptoms

Lyme – multi-system, observe 4 week symptom cycles, afternoon fevers

Bartonella – CNS out of proportion with skeletal, GI, sore soles, AM fevers, CNS irritability

Babesia – sweats, fatigue, headaches, air hunger, hypercoagulation.

Ehrlichia – headaches, muscle aches, low WBC

Lyme	Bartonella	Ehrlichia	Babesia
Amoxicillin	Fluoroquinolone	Fluoroquinolone	
Doxycycline		Doxycycline	
Cephalosporins	Cephalosporins		Macrolide + Mepron
Macrolide	Rifampin	Rifampin	

Supportive Therapies

- Alcohol causes spirochetes to make more heat shock proteins. It activates the spirochetes. No alcohol
- Multi-vitamins, B-complex, CoQ-10 and magnesium, essential fatty acids, trace minerals
- Low glycemic index diet; high fiber
- Methylcobalamin – B12 – IV or IM – aids in healing CNS and PNS. Benefits include strength and cognition, restores day/night cycles, and improves T-cell response
- Manage yeast with oral hygiene and probiotics as well as low-carb diet
- Enforce rest – proper sleep is absolutely essential
- No caffeine – must avoid afternoon energy sags
- Rehabilitation or exercise program is required for a full recovery. One to three days a week. Toning, stretching, posture, balance. Aerobics allowed only when near fully recovered

Panel Q&A

Panel consisted of Dr. Joe Burrascano, Dr. Garth Nicolson, Dr. Daniel Kindlehrer, and Dr. Raphael Stricker.

Q: Dr. Robert Rowen asked Dr. Burrascano about combining his therapies with other therapies?

A: Does not do much of that in his own office. Good complementary therapy helps the Lyme patient. Patients are sick because they are infected not because they need more oxygen.

Q: Can you comment on the SPECT scan?

A: Dr. Burrascano – SPECT scan is subtle. He uses Columbia for testing. Other comments – major use for insurance/disability. Need new generation scanner. Older devices may not work. Need a radiologist that knows how to read the tests.

Q: What about the CD-57?

A: Dr. Stricker - LabCorp is the only national lab doing the test. Quest has tried to do it but not useful. We were reminded by the panel that diagnosis is made by clinical history. Labs can be supportive but do not rule out. Even with the best labs, the tests are often negative, especially in the sicker patients.

Q: How do you know when to stop treatment?

A: Dr. Stricker – there is no test. Have to go with clinical picture and supporting labs. CD-57 is one mechanism. Dr. Burrascano – active infection is four week cycle and migratory symptoms. Strong indication if diary shows four week cycles that there is still an infection. If there is no four week cycle, but not feeling well, stop treatment. If they get worse in a few days, co-infections are likely an issue. Revisit the foundation. History is always more important than the testing. Dr. Kindlehrer - bad idea to taper antibiotics, but ok to pulse. Once you have chronic Lyme, it is unlikely that you will eradicate the infection. The question is when the person is built up to the point that they can live in harmony. Alternative therapies like Rife, oxygen therapies, etc. may be useful at this stage. Dr. Nicolson - believes that we do not eliminate the infections. People from Gulf War that recovered and later went back relapsed. We are not talking about eradication or cure but rather living with the problem.

Q: What about antibiotic-dependent patients?

A: Dr. Burrascano – cannot “cure” Lyme in most cases. It needs to be about balance between spirochetes and health. What is it that is difference between the “well” infected patient and the “unwell” infected patient? Someone from the audience said HLA – Dr Burrascano said no not HLA. Dr. Stricker – rotating antibiotics and trying different ones will get you to the point you can get off of them. Dr Burrascano – Patient compliance is a big issue as well. The patient may not be doing all of the sleep, stress-reduction, diet, etc. items that are key to a successful outcome.

Comment: Each one of us harbors trillions of microbes. These microbes are very smart. Going to war against them is not the answer. It is like dropping bombs in Iraq. There will always be more terrorists. We need to look at ways to survive with the microbes. We cannot keep creating more smart bombs.

Q: Can we do metal detox on antibiotic therapy?

A: Dr. Kindlehrer - Absolutely. Simultaneously and safely. Must go very slowly. Do not detox rapidly. Illness is an opportunity to learn. Don't be in such a hurry to get well. We want to improve well-being. Dr. Bock – With antibiotic and detox agent toxicity, watch liver function, white

blood cell count. Must be aware of additive toxicities. DMSA or DMPS or EDTA – be aware that these may be safe alone but may tip a person over the edge.

Q: Doctor commented on urine testing for Lyme being controversial.

A: Dr. Stricker – why the CDC published that is unclear. Negative does not help rule out but positive test is very helpful. Most commercial labs are not allowed to report the results of 31 and 34. Dr. Burrascano suggests putting published medical works/studies in the patient's chart in case the chart gets pulled for review.

Comment: Dr Kindlehrer - IgM generally thought of acute and IgG as chronic. With persistent infection, IgM positivity persists. If running WB and IgM is positive, many docs will say that is false positive, but with Lyme, the antibodies cycle. IgM positivity persists with persistent infection.

Q: Can you do 2.4 million Bicillin with Probenecid once a week instead of three times a week?

A: Dr. Burrascano – the fact that it works so well is a paradox. 1.2 is about 1000 mg. It works because the levels are sustained. One might be ok with 2 shots on a Monday and 1 on a Thursday.

Q: What about IV Vitamin C?

A: Dr Bock – part of their protocol for chronic Lyme for immune support and detox.

Q: What about the Diflucan protocol?

A: May have impact on Lyme as well as yeast. Dr. Schardt (not present) said there were several good reports from Diflucan after his own experience, but the jury is still out. Most doctors don't know how to distinguish Candida from Lyme. Well-tolerated. Very low liver toxicity. Often see severe die-off reactions. Dr Kindlehrer suggested that Ketoconazole in theory would work better on the P450 cytochrome.

Q: What about probiotics?

A: Probiotics need to be taken with some food or the acids will kill the beneficial probiotics. Dr. Stricker – a good probiotic may be the only thing you need to control the yeast. Once a week Diflucan at 150mg the New England protocol was used and seems to work well.

Q: Are we creating antibiotic resistance?

A: Dr. Stricker - Antibiotic resistance comes from not taking the entire dose like in the case of penicillin. With Lyme treatment, it is likely safe as compared to sporadically treatment with antibiotics. Dr. Burrascano – Dead bugs don't mutate. Treat seriously.

Q: What about Mycoplasma?

A: Dr. Nicolson commented that sexual transmission via fluid transfer is possible. Found that blood levels suppressed but tissue levels remained high and only gradually went down. May be related to persistent forms where the bugs are metabolically inactive.

Q: Are vaccinations for any reason bad with Lyme?

A: 20-30 vaccines for military people likely suppressed immune system and made them more susceptible.

Comment: Dr Kindlehrer – it is important to have a sense of community. Support groups can be useful if they are not victim support groups. He personally was sick with Lyme for 10 years and is now about 80-90% of former self and happier than ever. Lyme allows an opportunity to let go of things that no longer serve you. You find new levels of well-being.

Q: Do people have gut or prostate flares from co-infections?

A: Dr. Burrascano - Bartonella is the most prominent but about one-third of patients also show Borrelia and H. Pylori.

Dr. Aristo Vojdani



Dr. Vojdani is the director of [Immunosciences](#), a lab that offers testing in the realm of Lyme disease and many other areas. He started the discussion by stating that the [Multi-peptide ELISA for Lyme Borreliosis and Co-Infections](#) is the most important invention of his lifetime.

Lyme Testing

ELISA – they take antigen and put on a plate and then add human serum and look for color development. Presence of color indicates a positive result.

Western Blot – take lysate of *Borrelia burgdorferi* grown in culture. Transfer antigens to nitrocellulose and cut into strips. Apply the serum and look for bands. False positives can take place if the patient has another infection with similar antigenic structure. If patient has *Yersinia*, two bands on Western Blot will be positive. These are bands 23 and 41 according to Dr. Vojdani.

PCR – 100% specific if positive, only 10% sensitive. With 245 tests, only 15 were positive (6%). Generally, PCR is not useful in Lyme.

Dr. Vojdani posed the following question to the audience. If you grow *Borrelia* in culture, it will express different antigens like OspA, OspC. Is an antigen from *Borrelia* in culture (in vitro) the same as an antigen in the body (in vivo)? His response was that it is almost 50% different in the body than that grown in culture.

Dr. Vojdani noted that it is important to have a test that tests for the common strains that are thought to be European, but are often seen elsewhere. These are *Borrelia garinii* and *Borrelia afzelii*. The Immunosciences panel does that according to Dr. Vojdani.

Immunosciences measures antibodies to peptides of *Borrelia* both in vivo and in vitro. With the use of the Multi-peptide ELISA, Immunosciences found 12 samples that were completely negative by 340 other laboratories. He states that the Multi-peptide test is more sensitive than other tests available today.

Dr. Vojdani mentioned in his discussion that something as simple as 150-300mg per day of Quercetin can significantly bring down TNF-Alpha.

Mycoplasma may exist in 50% of saliva and digestive tract mucosa but with a strong immune system, it would not be found in the blood.

Western Blot vs. Multi-peptide ELISA

With the Western Blot, 46 tested specimens were positive. Comparing to the Multi-peptide ELISA, only 44 of the tests were positive. The two other positives were actually positive for mold exposure which was creating a false positive on the Western Blot according to Dr. Vojdani.

In looking at 21 equivocal Western Blots, the Multi-peptide ELISA showed that 16 of the 21 were positive.

In looking at 36 negative Western Blots, the Multi-peptide ELISA found 13 positives.

Multi-peptide ELISA sensitivity is about 70% compared to about 50% for the Western Blot according to Dr. Vojdani.

Q&A with Dr. Vojdani.

Q: What Babesia species does the Multi-peptide ELISA look for?

A: Babesia microti

Q: Which bands on the Western Blot does Immunosciences look at?

A: They use an FDA approved lab kit but report IND bands.

Comment: 20% of cases with negative Western Blots are positive with the Multi-peptide ELISA test.

Q: In regards to their reporting of Treponema antibodies on the test, do they find that some patients actually have syphilis?

A: These may be cross-reactive antibodies and the patients likely do not have syphilis. Many infectious agents cross-react with HLA-B27 (if present).

Q: If you send 100 normal samples from the healthy or asymptomatic population, what number would be positive with the Multi-peptide ELISA?

A: Maybe 5

Q: PCR is positive in about 10% in tests but if you had something like goat's milk, what would you expect with a PCR test for Borrelia?

A: A much higher number, maybe 100% if the Borrelia was indeed in the goat milk. The lower numbers in humans are related to the fact that the organisms generally do not live in the blood. According to Dr. Vojdani, Borrelia cannot get into blood from ingested goat milk if the patient has a good secretory IgA. He stated that they are too large to get into blood. A question then arose about breast feeding since that appears to be a known source of infection. Dr. Burrascano then went to the microphone and stated that Borrelia penetrates membranes including intact skin. Many mechanisms show that it may be possible. There seemed to be some lack of consensus on this point.

Q: Should one do antibiotics before the tests are run?

A: It may be useful for PCR to do antibiotic challenge, but for antibody tests, it is not useful. If you do take antibiotics ahead of time, you need to give yourself time after taking them for the antibodies to appear. If you take seven days of antibiotics, you would need to wait for the antigens to be released and the antibodies to be created. You would have to wait 2 weeks after antibiotics to have antibodies.

Dr. Steve Harris then commented on the Western Blot test from IGeneX. He asked:

How do you know that the specificity is correct and they we are not getting too many false positives? Dr. Shah and Nick Harris were given 100 blinded samples from the CDC. IGeneX even found one negative when CDC sample was previously reported as positive.

IMPORTANT NOTE: After the discussion, I was interested in knowing more about the co-infection portion of the test. I asked Dr. Vojdani what species of Ehrlichia and Bartonella they were testing for. His response was that they only test for one and that the goal is to check for cross-reactivity. **It should be noted that this, in my opinion, means that the test is not a good screening test for co-infections.** It may be highly useful for Lyme disease resulting from Borrelia but if it is not covering all the known and testable species of the co-infection organisms, then it is my opinion that the test should not be used for the purposes of co-infection diagnosis.

Dr. Ritchie Shoemaker

Dr. Shoemaker was originally interested in rural medicine. That changed in 1997 when fish started dying in the Pocomoke River. People that worked with the fish also started having illnesses. Fatigue, muscle aches, respiratory infections, light sensitivity, memory issues, etc. The cause was determined to be Pfiesteria. He had a sick lady with significant diarrhea for which he prescribed Cholestyramine (CSM) since it often causes constipation. He found that the cough, headache, memory issues that the lady had experienced all improved. He gave CSM to several Pfiesteria patients and they all got well. There were at the time no markers for the disease. No tests. How does a drug that is not absorbed by the body resolve these conditions?



Then, similar patients with mold exposure were treated with CSM and also got better. He found a marker called VCS, Visual Contrast Sensitivity which could be used in testing for biotoxin-mediated illnesses.

Dr. Sam Donta found evidence of a neurotoxin being created from Lyme disease. Dr. Shoemaker gave CSM to people with Lyme. A few got better but many got worse. Why?

Approach to treatment must be to identify what is wrong with the host response. Using methods of intervention without correcting innate immune responses is illogical. There is a commonality of inflammatory events initiated by biological toxins.

Neurotoxins gain entry and make some people sick and other people do not sick. 3 get sick. 7 don't. What is the difference? The difference appears to be HLA (genetics).

Dr. Shoemaker has HLA records on 3500 patients and can look at these and see what a patient will be susceptible to. Fungal, dinoflagellate, and Lyme toxin susceptibility can be correlated. Rare/dreaded genotypes are found in about 4% of the population.

People get much worse with second or third exposure to these substances. He finds a rise in IL-10 with second and third exposure.

Lyme and co-infected Babesia patients have different types of cytokine responses than mold patients.

If a patient does not respond to antibiotics, you have to ask, "Are there living Lyme organisms or not?" Some clinicians say after three weeks, you have Fibromyalgia. Others argue that more antibiotics are needed. Others say that other infections may be to blame.

Why do we need to know this? The target is chronic illness after treatment with antibiotics. Problems of sero-negative Lyme could be a lack of adaptive immune response. Immune mechanisms are often **enhanced** innate mechanisms, **not** suppressed. New approaches to treatment are the bottom line after the antibiotics are done. It is not only about antibiotics. There are new concepts that need to be learned.

First, we need to look at what else could be going on. Need to learn about C4a. C3a, C4a, C5a are activation products. C4a helps determine if you actually have living Lyme organisms or not. These compounds rise within 4 hours after exposure from fungal origin or 12 hours after Lyme infection.

VIP (vasoactive intestinal polypeptide) and VEGF (vascular endothelial growth factor) show the source of pulmonary illness. VEGF enhances oxygen delivery. Clotting abnormalities are clear. Autoimmunity is becoming clear. Need to look at antibodies to gliadin and cardiolipin. Know the genetics! Know the response to EPO (erythropoietin).

Myelin based protein antibodies are present in 30% of mold patients and 4% of Lyme patients.

In looking at Lyme, you won't get better until the toxins are gone. Symptoms of chronic Lyme are no different than chronic mold. Diagnosis of Lyme by symptoms is not considering potential differential diagnosis. Do not assume that persistent symptoms mean ongoing Lyme.

Dr. Shoemaker shared his "Biotoxin Pathway" which shows the cascade of events that starts a biotoxin illness in those who are HLA-susceptible, it leads to increased leptin, increased cytokines, increased MMP-9 (MMP-9 is a global measure of cytokine activity in the body), reduced VEGF, and reduced MSH (alpha-melanocyte stimulating hormone). Reduced MSH leads to reduced ADH (antidiuretic hormone), reduced sex hormones, changes in cortisol and ACTH (adrenocorticotrophic hormone), prolonged illness, resistant staphylococci infections, gastrointestinal problems, chronic pain, and sleep disturbances. All of these are downstream effects of a biotoxin in an HLA-susceptible individual. You really have to see the Biotoxin Pathway diagram to understand the impact that this may have. It is available in his book "[Mold Warriors](#)" which I highly recommend.



Another conference summary that I found also talks about this. It can be found [here](#).

MARCONS is Multiply Antibiotic Resistant Coagulase Negative Staphylococci. This is another one of the tests that Dr. Shoemaker performs as the staph infection itself can heavily burden the body with more toxins. One needs to use several antibiotics at once to avoid resistance. Deep aerobic nasal culture is needed.

There are some medications available to help address high C4a. Also will have medications to address VIP such as Aviptadil. Currently not FDA approved.

Lyme disease often unveils HLA susceptibility. What began the illness years ago becomes less important. It does not matter how the process started, but how the process ends.

Biotoxins turn on cytokines which cross the blood-brain-barrier and bind to hypothalamus where MSH is produced. MSH regulates hormone production. Leptin resistance is often a factor in obesity/weight gain. We can work to enhance production of VIP since MSH is not legally available at present. MSH availability could be a major future breakthrough.

Some of the symptoms of biotoxin illnesses include:

- Fatigue
- Headache
- Light sensitivity
- Memory and concentration difficulties
- Joint pains, AM stiffness
- Skin sensations and tingling
- Shortness of breath
- Cough
- Confusion
- Blurred vision
- Sweats
- Ice-pick pains
- Abdominal pain
- Diarrhea
- Metallic taste
- Static shocks
- Vertigo

25% of patients with Lyme had “post-Lyme”. Not everyone gets better with antibiotics. Allen Steere published a paper recently about HLA genotypes. (I know – we don’t like him! ☺)

VCS (visual contrast sensitivity) test is a non-invasive measure of contrast. It eliminates near, far, color, static, motion, or peripheral vision issues. Visual acuity must be better than 20/50 and the test must be taken under controlled light of > 70 foot lamberts.

The HLA genotype 4-3-53 is one where if you get Lyme, you will not get better with antibiotics alone. Less than 5% have this genetic combination. Those patients MUST have toxin binding protocols. All the antibiotics in the world will not help them.

Dr. Shoemaker also found that wingspan (measure when both arms are stretched out in opposite directions) and height has a correlation to illness. If wingspan is greater than height, these people are usually more affected by biotoxins.

HLA - Genetics

HLA is a very complicated area that I am personally still working on understanding. Interpretation of the tests can be difficult and I find that even doctors that may order the test may not fully understand the interpretation.

HLA – 2 copies of DRB1, everyone gets 2 copies of DQ. Everyone gets a total of 2 copies from three other alleles DRB3, DRB4, DRB5. The testing language will change over time for interpretation of these tests. 52A and 52B and 52C for DRB3. Use 53 for DRB4 and 51 for DRB5 (old language).

All of the HLA tests are expressed as n-n-n and represent DRB1 – DQ – DRBn.

The HLA-DR combinations that seem to be the most problematic for Lyme infected patients are as follows:

- 15-6-51 (20%) – Lyme susceptible
- 16-5-51 (1%)
- 4-3-53 (3%) – this is the most difficult combination. Called the “dreaded” or multi-susceptible genotype which has difficulty with both Lyme and molds
- 11/12-3-52B (1%) – also one of the multi-susceptible genotypes
- 14-5-52B (.5%) – another multi-susceptible genotype

4-3-53 and 11-3-52B are the two most significant. They are correlated with low VEGF, high C4a. These patients need to be over-treated.

Some of less desirable combinations with mold illness are:

- 7-2-53
- 13-6-52A
- 17-2-52A

Complement – C3a, C4a, C5a

Dr. Shoemaker found that C3a and C4a can be used to detect cases of Lyme. They rise quickly and stay elevated. C4a appears with acute Lyme disease, this may become a more accepted indicator for diagnosing the presence of Lyme disease. C4a will rise 12 hours after a tick bite in those with Lyme but not in those without Lyme.

How to use C4a in chronic Lyme? In all people with Lyme and antibiotics that were still ill, C4a was high. With Actos and CSM, the C4a drops dramatically. Chronic Lyme patients that have Lyme organisms that are active/living should see a rise in C4a after CSM / Actos protocol is stopped. This may indicate the ongoing presence of active infection.

Elevated levels of C3a and C4a are rarely seen in controls. Levels generally rise within 4 hours after exposure to toxin-producing fungi. C3a and C4a are important new markers for diagnosis of hyperacute Lyme disease.

With acute Lyme, C4a will rise rapidly to about 6000. With chronic Lyme, it will be about 10,000. Antibiotic treatment often creates a further rise to 11,000. After Actos and CSM treatment, the

average is down to 3,800. Control levels are around 2600. When re-exposed to a biotoxin, the average is 18,000.

History, Diagnosis, and Symptoms

Dr. Shoemaker takes a biotoxin history – are you tired? Fatigue, weakness, muscle aches, cramps, unusual pains (MSH deficiency impacted by pain – sharp stabbing like an ice pick, lightening bolt pain), headaches, light sensitivity, red eyes, blurred vision, tearing or dryness, respiratory symptoms, sinus congestion, cough not related to smoking, and shortness of breath

In shortness of breath, VEGF might be the only reason. It is important for opening capillary beds which are needed when engaging in exercise. If a patient has some good days and then pays the next day and is exhausted, usually VEGF deficiency has gone beyond ability to deliver oxygen and the patient is doing things anaerobically. Reduced glycogen in cells. VEGF deficiency.

VIP is a neuropeptide made in hypothalamus and regulates cytokine effect. First found in the intestine. Can give someone VIP – Aviptadil. It has FDA designation but not approval. Not available yet. VIP deficiency will acquire a rise in pulmonary artery pressure with exercise (backwards). VIP in the lungs vasodilates. This is still in early stages of being understood. It may be of interest for those that are tired and short of breath.

Symptoms may include: abdominal pain which often results in a patient being told they have IBD, diarrhea (elevated C4a often), joint problems, cognitive issues dominate the illness (in children, math skills are less common to drop first where in teens and adults, math skills drop).

Recent memory is often shot, long-term memory is in tact, confusion, concentration problems (some folks are still working like they are superman or superwoman – these are incredible people). Word finding difficulty, decreased assimilation of new knowledge, lost in familiar places. Note that many people with these symptoms would be put on Ritalin. Mood swings, appetite swings, sweats at night, difficulty controlling body temperature, hypothalamic symptoms. ADH levels are at least 2.5 lower than what it should be which leads to need for lots of water. In the face of developing dehydration, patients continue to pee. 40% will be thirsty, pee a lot, and get static shocks. One patient continued to break Palm Pilots because of the static shocks. Patients become a conductor. Car doors, door knobs, drinking fountains, and even other people may all cause static shocks. Discoloration from jewelry. Numbness, tingling (changes day to day). Neurontin is often used when it is actually a mold issue (wrong approach). Sensitivity of skin to light touch, crawling sensations. Sensation comes from formic acid which is also found in the mandibles of ants. This is called formication. Tremors. Hold a piece of paper on top of the hand and it magnifies this symptom like crazy. 70% of mold patients have tremors – often diagnosed as Parkinson's.

Dr. Shoemaker talked about his visit to New Orleans after Katrina. He said the only safe place in New Orleans was one boat. They observed 250,000 colonies per square inch. Found 2.1 million spores of stachybotrys in St. Bernard's parish. The TV stations were told not to run the piece and all the other doctors were taken away. A whole generation of people in New Orleans will likely have issues related to mold. The average number of symptoms was 16.2 for people that had "Katrina Cough". More information can be found [here](#).

Treatment

If you have Lyme, then you likely need antibiotics. He sees some people with Lyme that were not given antibiotics long enough. Often sees people that have been treated with too much antibiotic treatment. C4a may be a clue. It looks good today. Dr. Shoemaker generally uses three weeks of oral doxycycline. If people don't do well, look at genotypes. HLA-DR testing is done by LabCorp. Don't accept Quest. Need all 10 alleles to understand the genotype. A Lyme patient that is a 4-3-53 will not get better with antibiotics alone. Patients have "neurotoxic Lyme". The entire protocol is on his web site mentioned at the end of this section. Protocol is Actos for 5 days with a no amylase diet. On Day 6, Actos and CSM are used together. Actos blocks fat cell production of TNF and MMP-9.

Each of the alleles is associated with a change in amino acid structure of HLA-DR cleft. Antigen of a given shape or size needs to fit in cleft. This turns on sequence of events.

After there is a toxin, it binds to receptors on fat cells which turns on inflammatory cytokine responses, lowers leptin, turns on MMP-9, reduces blood flow in capillary beds (get sludging in capillary bed). This creates oxygen deficits on the other side. HIF (hypoxia-inducible factor) turns on VEGF.

You can measure changes in a patient when putting them back into moldy building after improving – measure each day. Within 12 hours – IL1B (interleukin 1 beta – good friend for mold determination) going up if mold. With Lyme, more TNF. Can have normal IL1B and still be exposed. Within 24 hours, cytokines are going up.

When you go into a building with mold on the floor, it may not make you sick but the toxins are carried on spores and fragments, not the fungus itself. **Illness is not a fungal infection at all.** It is not colonization, not an infectious disease. Can get sinus colonization with other presentation but they are not toxin formers. The toxins are what get inside you and cause all of the symptoms, not the fungal organisms themselves.

CSM has an electrostatic mechanism from the CSM to the toxin itself. Binds everything. PCBs, etc. Can you flush toxins out with fats and oils? He has tried everything and Omega-3 and Omega-6 help like Actos, but other approaches did not work.

Blue-green algae products? Spirulina used to be made in Washington. There was a big bloom of microcystis at the source and the source is no longer pure. Do not get blue green algae from Klamath lake.

Welchol has a role for people that cannot take CSM. 5% drop out of CSM due to constipation. Some people cannot tolerate the other substances in CSM. Welchol works about 20% as well and may be ideal for prevention of exposure. 2 tabs 4 times a day.

Chitosan – does not work. Bentonite and charcoal have not been used. Chlorella does not work. Patricia Kane uses IV phospholipids but Dr. Shoemaker had no data on effectiveness.

HBOT and IV Peroxide patients are often still ill. May have helped but did not resolve the problem.

If you have MARCONS, he uses multiple antibiotics. He does a culture called API-Staph. If present, the patient will not get better until that is removed. Topical Bactroban. Not FDA

approved. Rifampin penetrates the biofilm, but doxycycline does not. May need to use 3 antibiotics at a time or you may not eradicate the infection. The culture is a deep nasal culture. May require Rifampin, Bactroban, Bactrim (often gives rashes) or Macrolide, Quinolone, or Cephalosporin.

MARCONS is a major player in Lyme patients with antibiotics. The toxins from candida and the gut are not as significant as that from MARCONS.

When Actos and CSM are not useful, it is likely that there is living Lyme or ongoing fungal exposure.

MSH levels do not change rapidly as people get better. Over months and months they will change. MSH does not go down with age.

VCS is the best test to diagnose herx. VCS will fall on row E and row D and rise of MMP-9 and TNF will be observed. Only 8% of patients with biotoxin illnesses have a normal VCS test.

Look for antigladins and cardolipins. If you find high MMP-9, think molds. False positive ANAs are common.

Looks at:

- VCS
- MSH Deficiency
- MMP-9 elevation
- HLA
- ACTH/cortisol
- ADH/osmo

When you have three of the six factors, it is likely that you have a biotoxin illness.

75% of mold patients have elevated Interferon-alpha.

MMP-9 is the best marker of activation of cytokines from fat cells.

Lyme organisms hate blood and want to get out of the blood. They will remodel the extracellular matrix.

For more information on Dr. Shoemaker's work, visit <http://www.chronicneurotoxins.com> and www.moldwarriors.com.

Dr. Patrick Quillin

“Is Cancer an Infection?”

Note: As this presentation was not directly related to the topic of Lyme disease, the notes may be more abridged than other portions of this document.

He has 15 books that have sold over 1,000,000 copies. The discussion was on the infectious component of cancer.

“Of the action of drugs we know little, yet we put them into bodies about which we know less, to cure disease of which we know nothing at all.” - Sir William Osler, MD

www.nutritioncancer.com is Dr. Quillin's web site which has more information.

“Something” corrupts DNA to induce cancer.

- Mutagens – toxins, free radicals, malnutrition, infections, psychological stress, UV, EMF
- Pathogens – gut, sinus (40 million people with infectious sinusitis), root canal, metabolic products

Mutagens + Pathogens – Host Defenses = Carcinogen

Items which **enhance immune function:** A, C, E, B6, Zinc, Chromium, Selenium, CoQ-10, EPA, GLA, arginine, glutamine, astragalus, Cat's Claw, Pau D'arco, yogurt, garlic, enzymes, green leafy vegetables, shark oil, colostrums

Items which **reduce immune function:** mercury, lead, cadmium, VOCs (volatile organic compounds), PCBs, benzene, high glycemic diet, stress, depression

Note: Based on my personal research and review of the works of Stephen Buhner, astragalus is not recommended for those with chronic Lyme, though it may be very useful for acute, early Lyme.

HPV is involved in 80% of cervical cancers. H. Pylori is a risk for stomach cancer. Hepatitis B often leads to liver cancer while AIDS often leads to lymphoma. CRP is a marker for cancer progression. Ketaconazole has been used against prostate cancer. Can often culture aspergillus or fungi from cancerous tumors.

Relayed the story of a 91 y/o doctor with stage 4 cancer that cured himself with antifungals. There have been observed similarities between cancer and fungus.

The average senior citizen on 11 RX medications. Suggested that CWD (cell-wall deficient) organisms are the result of antibiotic usage. More than 25 prescriptions of antibiotics in 17 years doubles risk of breast cancer. The US consumes 50 million pounds of antibiotics per year, ½ of which are to animals which result in food products that we later consume.

Yeasts ferment in human tissues and produce metabolites that impact the body in negative ways. We live in a world where gravy is a beverage and “Pop Tarts” a setting on a toaster. He actually showed a toaster where “Pop Tarts” was one of the settings.

Diet is critically important. If you have too much sugar in the bloodstream, you cannot get well.

We need to increase endorphins with humor and tighten down cortisol – showed several celebrities over 90 that had humor in common.

Dr. William Rea

“Autogenous Bacterial and Fungal Vaccines for the Treatment of Chronically Recurring Infections and Inflammation”

If you want vaccines to work, you need to clean up the environment. Toxic environments like the smog in Mexico City will decrease the connective tissue matrix and the immune system and keep its function to a minimum.

EPA has environmental monitors in every city. Can get details from the EPA web site (<http://www.epa.gov/epahome/commsearch.htm>). Helps gauge why matrix and immune system become distorted and allow people to have recurrent hypersensitivity and recurrent infections.

If you measure lead from the beginning of time, no lead was found in the bones before the time of the Romans where they used lead pipes in villages. The Industrial Revolution has increased the amount of lead significantly. The curve was trending significantly upward but has now become lessened with the removal of lead from gasoline. When you find it now, the load is generally not as high as it was previously.

Ragweed sensitivity was observed by physicians that had bridged the 30 years before and after Industrial Revolution. Japan is loaded with Mountain Cedar but had no sensitivity until they became more industrialized after WWII. These responses are usually caused or triggered by pollution.

Mercury is another problem. Mercury comes from landfills – pretty ones and ugly ones. Everyone downwind from a landfill will absorb mercury. EPA studies show that there is 70 tons of mercury from polar ice caps when they melt. This becomes mercury rain. Goes up fish chain and causes contamination.

Pesticide spraying airplanes also lead to hypersensitivities. Spraying in Texas results in the sprayed substances arriving in Ohio within 36 hours. Spraying in Biloxi, Mississippi ends up in Minneapolis the next day. Spraying in West Africa will end up in Eastern United States. This causes immune system and matrix problems.

Sources of indoor pollution are in the home. Most perturbing parts of the environment are the home and the workplace. Mycoplasma Fermentans from Gulf War likely resulted from issues in immune system and matrix. Three most common indoor issues are pesticides, gas stoves/heaters, and formaldehyde from foam rubber, synthetic carpets, etc.

These all add to the Total Body Load. These include chemical, psychological, physical, and biological stressors. Several hundred chemicals are found in our drinking water and foods alone. The air is loaded with chemicals.

When lowering total body load, organic foods are poison free and are much more nutritious. They may cost more, but they are critically important. People usually eat less and thus the cost averages out.

Drinking water is a virtual chemistry lab. We contaminate it even more with chlorine and the lead, copper, and PVC conduits also add to the problem. There is still a significant number of water pipes in America made of asbestos. Arsenic is also being observed and may be from food.

Vaccines

People become sensitive to anesthetics. They can test with local anesthetics and find one that the patient is not sensitive to. They can also neutralize with a vaccine. It is best to use local anesthetics rather than general anesthetics.

There is a mixed respiratory vaccine on the market that treats many respiratory disorders.

Autogenous (made from your own body to treat your own body) vaccine can be used if stock vaccines have failed. This is done with stool, nasal, throat, or other cultures.

Most common sensitive organisms cultured out of the stool Pseudomonas, Proteus, Candida, Strep, Klebsiella, and E. Coli.

In sinus cultures, various Staph infections are the most common (70% of observed cultures). Skin Staph which is assumed to be benign can still cause sensitivity and weaken the system.

In sputum, the observed organisms were Strep, Candida, and Pseudomonas.

Vaginal cultures show Staph, Strep, Lactobacillus, Candida, Enterococcus. Some of these are beneficial.

Tongue – white tongues are not always Candida. Majority are bacteria not Candida. Only 4% are Candida. Staph and Strep dominate.

86% of people in study had resolved their condition with tailored vaccine of their own fungus or bacteria.

With Lyme disease there is a wide range of symptoms. The antigens perturb the whole immune system and created mold, Candida, and food, mycotoxin, etc. sensitivity. They had created a vaccine which helped many of the people with Lyme.

In treating the chemically sensitive, immune modulators include: Levamisole, Thymosin, Transfer Factor, autogenous lymphocytic factor (ALF), mycotoxin immune modulator, and autogenous vaccine. They have done a lot of studies on people using “ALF” with good results.

They can also take small amounts of mycotoxins, create a vaccine, and appears to improve immune response.

He has worked with Garth Nicolson on creating a vaccine for people in Desert Storm that removes the need for ongoing antibiotic therapy. Vaccines can be very useful as an adjunct therapy.

Dr. William Stuppy

“Neuroendocrine Manifestations of Gastrointestinal Infections”

In his experience, sending tests for parasites to labs in the US always came back negative. Assumption was that there were no parasites in the US. Testing with salivary SIgA provides useful information. Found parasites in 672 patients.

Organism	Prevalence
Cryptosporidium	243
E. Histolytica	213
H. Pylori	212
Giardia Lamblia	163
C. Difficile	114
Blastocystis Hominis	41
Ascaris Lumbricoides	64
Taenia solium	32
Trichinella Spiralis	23

Adding up the numbers shows that several subjects had multiple infections. Assumption was that Cryptosporidium, C. Difficile, etc. were not going to be found.

95% of labs do not report blastocystis. There is also a debate on whether or not it is a commensal or pathenogen. Dr. Stuppy suggested to those that do not understand it is pathenogenic should consider drinking blastocystis and see how they feel.

Ascaris, Taenia, Trichinella not uncommon. When treated for Ascaris, salivary antibody goes away.

Follow adrenal function with saliva testing and autonomic nervous system with HRV (heart rate variability) – these manifestations are very common.

Adrenal Dysfunction – elevation of cortisol between 4am and 8am. DHEA levels are low. Most are overweight and increased abdominal girth. Chronic infection with parasites will lead to weight gain. The parasites often cause adrenal dysfunction.

ANS Dysfunction – with parasites, often have sympathetic hyperactivity and parasympathetic hypoactivity especially at nighttime. HRV measures beat to beat variation in milliseconds. HRV represents the condition of the autonomic nervous system.

Other issues with parasites were diminished melatonin and irregularities of insulin activity related to cortisol. With salivary testing, melatonin is low. When parasites are eradicated, melatonin returns to normal.

Strongly suspect gastrointestinal infection in patient with adrenal dysfunction. Test and treat for adrenal dysfunction.

Q&A

Q: What lab is used for testing?

A: Diagnostechs (<http://www.diagnostechs.com>)

Q: What is the process?

A: Nuke the parasite, supplement with probiotics and colostrum. Probiotics and colostrum are the first line treatment for C. Difficile. For adrenals, phosphatidylserine and phosphatidylcholine can be taken at night.

Q: What do you use to treat?

A: NTZ or Nitazoxanide – is used all over the world but not as much in the US. It is now approved in the US. It is the only thing he uses as it works against all parasites including ascaris and blastocystis. The trade name is Alinia.

Comment: Dr. Garry Gordon got disallowed by Blue Cross for doing stool analysis on every patient. 90% of Diagnostechs tests reveal pathogenic bacteria and 1 out of 2 show parasites.

Q: I am seeing lots of Blastocystis and having difficulty treating it. What works?

A: Before Alinia, he used Flagyl. Treatment failure rate was high. Patient dissatisfaction rate was high. Moved to tinidazole. Has toxicity. Alinia for blastocystis is superb. #1 cause of treatment failure is failure to test the spouse or significant other. The patient gets reinfected. Have not had 1 failure with Alinia unless they got the bug again. Test both spouse (AND significant other he joked ☺). One lady kept getting it again from her dog. Dosage Alinia – PDR dose is not enough. Comes in 500mg tablets. PDR recommended 1 twice a day with food for 5 days. Not enough. 2 twice a day WITH FOOD for 10-14 days for blastocystis. For cryptosporidium, toxoplasmosis, 3 weeks. It is the safest antibiotic he has ever used and has shown no liver toxicity. Dr. Norman Fishman using has been using Alinia to treat babesiosis. Dr. Stuppy treats Lyme with Alinia and HBOT. He has only treated six cases but all have been a success.

Q: With ascaris, long-term repeat treatment is needed. How does this work with Alinia?

A: Used to use Albendazole. Starting to keep data on single treatment with Alinia. Alinia created to kill ascaris in the veterinary industry. A 2-3 week course is sufficient but still need to retest.

Q: How can you tell if there is active infection vs. old exposure using IgA?

A: IgM and IgG have been totally disappointing. Elevated IgA are not false positives. Dr. Stuppy retests and finds that 2-3 months after treatment, they become negative.

Q: Hookworm infection helps allergies?

A: One doctor commented that pig whipworm is being used for bowel issues – shifts Th1, Th2. 2-3 week life cycle before the worms die so it appears safe.

Q: How to treat toxoplasmosis?

A: On diagnostic tests for saliva, they report positive and negative, but Diagnostechs does run titers. The titers change. You can request the titers. Toxoplasmosis can cause pancreatitis, hepatitis, can go to brain even if not immunosuppressed. Treat with Alinia.

Dr. Mark Levine – National Institutes of Health

“Ascorbic Acid and Tight Control: Consequences for Health, Disease, and Disease Treatment”

Note: As this presentation was not directly related to the topic of Lyme disease, the notes may be more abridged than other portions of this document.

Before 1998, RDI (recommended daily intake) recommendations were based on preventing deficiency with a margin of safety. Levine proposed looking at concentration-dependent functions with vitamins and what doses are needed to achieve effective concentration in humans.

Vitamin C is a vitamin that we do not make. Most mammals do. It is required for survival. We have the gene to make it but it has been mutated. Vitamin C is an electron donor. Everything ascorbic acid does is lose electrons. Electrons go to bad guys – quench the bad guys.

How are concentrations achieved in humans as a concentration of dose?

15 women lived on a diet that was vitamin C deficient. They measured blood values. 6 month. Replenished at various doses and looked to see at each dose what the steady state is over a period of days.

As dose goes up, oral percent absorbed goes down. The digestive tract is a barrier. Oral C is tightly controlled. Data says that orally, cells are filled up after 100-200mg daily.

At higher doses, you can often find that what you put in comes out in the urine. The kidney is a component of the tight control in that excess Vitamin C gets secreted.

There can be some conditions (diabetes possibly) where higher amounts of C are needed to reach plasma concentrations.

Oral and IV are not the same beast. Linus Pauling claimed that 10 grams of ascorbic acid was useful in cancer. This was based on vitamin C creating collagen. Subsequent studies said that 10 grams was of no benefit. Dr. Levine wanted to revisit. The problem was that the subjects only got oral C. IV C is likely safe and has low toxicity.

Studies were done in people who are young and healthy. It is unclear whether or not people with health conditions use up vitamin C at a faster rate.

Dr. Garry Gordon

Presentation from Dr. Garry Gordon can be found [here](#). I do recommend a quick look at the presentation. His web site is www.gordonresearch.com.

To treat Lyme, 4 issues that must be dealt with:

- Kill spirochete
- Immune modulation and supporting
- Collagen tissue supporting
- Symptomatic help

He discussed the "Healing Lyme" book by Stephen Buhner.

IV vitamin C should be used with oral vitamin C for maximum effect. "Beyond C" or "Bio En'R G'y" are Dr. Gordon's products and Nature's Way will be introducing them worldwide.



Dr Gordon could only take 1 gram of vitamin C previously before getting digestive problems. He now takes 20 grams with Bio En'R G'y. It is best to use oral and IV C at the same time to leave no place for rogue to hide.

Each of us infected with a huge array of viruses. Paul Ewald – book "Plague Time". In someone who has the APO-E 4 gene, smokers have a much higher risk of atherosclerosis. People that are APO-E 4 are more likely to be infected with Chlamydia pneumoniae. Evidence is mounting that genes, smoking, bacteria, all play a role in causation.

Need to tie environment and genes together or you will not treat infection. We cannot identify all the organisms in a mouth. We cannot possibly get beyond the complexity of dysbiosis.

1 out of 2 people are walking around with parasites. You have to look at all of the issues. Total Body Burden of Infection is a key concept. The burden could be chemical, metals, infections. Dr. Gordon does not focus as much, if at all, on which infections but assumes that we all have infections that need to be addressed by a burden lowering protocol.

The more you have of all of these different pathogens, the sooner you are going to die. You have to lower the total body burden.

Ozone was used in Russia for 30 years. Ozone with UV blood irradiation is a fast treatment for reducing total body burden.

Nothing about C is effective unless taken every four hours.

We all need therapies to allow body to handle the total body burden. Garry changed his life with chelation treatments – getting lead moving out. Don't need it all out but need to significantly lower it. Unless you chelate consistently for 15 years, you have not moved the major store of lead out of the bone. It can come back out of the bone and back into the organs.

There are lots of people that are upset that patients use nutrients instead of prescription products.

80% have CMV – can use transfer factor – Gordon puts transfer factor in all of his immune supporting products. EBV, Herpes, Chlamydia. All contributing to the day you are gone.

Another book - Matt Ridley – "The Agile Gene" – ¼ of our DNA is from HERVs (human endogenous retroviruses). They are kept under house arrest by methylation processes.

RNAs are the body's cell to cell communication system. "Tick Support" is an RNA-based product to inhibit reproduction of Lyme disease. It is useful now that we can do affordable genetic testing.

EDTA is an anti-viral. It might be useful to be on EDTA even if you thought it was not absorbed. It may help with colon cancer. EDTA is a powerful antioxidant which could prevent oxidation of the contents of fecal stream from being carcinogenic.

DMSA – heavy metal goes through liver into intestine. Need to catch it so that it is not absorbed. Rice bran extract or beta-sitosterol could cover the need for CSM.

Dr. Gordon spent 2 million dollars going to conferences. He has seen a lot of stuff.

If you do genetic testing, it is often best not to have it covered by insurance or it may be in your records and impact you later.

Dr. Gordon charges 300 dollars an hour and records patient sessions – will have better compliance and cover yourself legally. He creates a CD of everything you talked about and gives to the patient.

Since they have been doing genetic analysis on children (1300 dollars, 60-page report), they can improve success with bringing children back to functioning. www.autismanswer.com

1 out of 2 people at 85 will have Alzheimer's. Garry Gordon is 71.

They look at 40 different genes. PCR is useful for infections but not for gene identification. If you have a compromised major problem with MTHFR, you cannot solve it with folic acid. Depending on how you methylate, there is either a slight risk or significant risk of heart attack.

Nutrigenomics is the direction of the future. Diet talks to our genes. Take genetic profiles and create customized nutrition. This technology is available now. He suggested to Google "nutrigenomics".

Bioidentical hormones can even be harmful depending on a person's genetics. NIH says that genetics are 33% of how we feel physically and 36% mental and emotional state.

SIRT1 is a gene that works as a caloric restriction mimic.

Pharmacogenomics – using genes to prescribe medications

Their gene testing becomes your 60-page owner's manual.

If you had a Heparin shot everyday, it would be hard to die of a clot. Inconvenient. Can alter coagulation in other ways and if taken with EDTA works almost as well as heparin.

Garlic, Omega 3 – anti-clotting agents. Coumadin – stupid drug. With Nattokinase, things got really easy. Coumadin is one of the most dangerous drugs. Should look at how a patient will metabolize it.

Methylation will handle viral load, bacterial load, and is the main step in detoxification. Need to optimize methylation.

By doing one single gene test, looking at 40 genes, Dr. Amy Yasko can tell you which foods will talk to your genes and RNA can be specifically generated to help detail with the issues. Lyme, strep, staph, etc.

For macular degeneration, they can now do an injection into they eye with a prescription product that responds well.

Autism has increased but genes do not change that fast. Dr. Gordon thinks that there is still more to the story to be understood.

38% of 50 y/o women autopsied have breast cancer. At 70, 70% of men have prostate cancer. Gene tests can tell if you have a cancer you have to worry about or not. 80% of women never needed the chemotherapy and radiation.

Amway has bought ½ of the largest gene testing lab in the country, Alticor Inc.

www.Testing4Health.com is the site where the genetic tests can be ordered. You get a book, DVD, and test kit when ordering the Complete Basic SNP Panel 1

Mass Spectrometer is a much better tool than PCR for genetic testing.

Essential Daily Defense is an oral chelation product. Chelation treatments are needed for 15 year. DNA methylation issues can lead to cancer.

If you cannot afford the gene testing, take folinic (Metagenics) acid and B12.

Test with DNA treat with RNA (master and commander of the body). RNA is silencing a gene. RNA regulates gene expression. RNA is natural. To get a patent, it has to be changed to be synthetic. Then it does not work. Gordon Research has 50 natural products that modulate, but they are not magic bullets. He joked that he thought he would be standing in front of us in diapers (from having reversed the aging process so dramatically). Runs \$110 per bottle – average person cannot afford it but there are non-average people out there.

He never had to use IV to get metals to show up in children. He is using their formulas. This is because the infections hold the metals. Metal detoxification is not a sprint. It is a lifetime program.

You have to bring nutrients to play, have to deal with infections (UV blood and ozone useful after a child stable).

Dr. Gordon likes both HBOT and FIR (far-infrared sauna).

Dr. Alan MacDonald

“Borrelia Infection as a Root Cause of Dementia”

I was very excited that Dr. MacDonald was speaking at the conference as I had been introduced to him previously through [Under Our Skin](#). If you go to the [Sample Characters page](#), you will see Dr. MacDonald. I was also excited when Dr. MacDonald and his lovely wife Patricia shared the shuttle with me on the way back to the airport. It was a great opportunity for further conversation and an opportunity for me to thank Dr. MacDonald for his important contributions.

Dr. MacDonald showed images from a 1944 text book about syphilis which indicated a pattern of improvement with a patient with dementia and treatment with penicillin. The mechanism used was to take writing samples, and you could see clear progress in the clarity and quality of the sample as treatment progressed.

Most people with clinical dementia are not identified as candidates for treatment/remediation.

Neuroborreliosis mimics the protean manifestations of spirochetal infection in the body. There is likely significant information to be learned from the syphilis model.

In Alzheimer's, there is observed loss of brain volume up to 50-60%. Plaque perpetually and irrevocably injures brain. In the dead or dying nerve cells, there are GVBs (granular vacuole bodies) and tangles (fibers inside the nerve cell or micro-tubules).

Every patient is an opportunity to rewrite a chapter or verse in future medical textbooks.

“He or she who knows syphilis knows medicine.” -William Osler

Neuroborreliosis is much like syphilis. Syphilis is caused by *Treponema pallidum*.

General paresis occurred in late syphilis (30-40 years after infection). Neuroborreliosis is like syphilis in that it can be latent or asymptomatic but stays in body and at a future time will flare up and present with many symptoms including brain fog. Brain fog can be mild, moderate or severe. Some are totally incapacitated. Ability to do everything is diminished even up to sphincter incontinence.

Lida Mattman has an excellent book *Cell Wall Deficient Forms*.

Koch Postulates cannot be passed since syphilis cannot be grown in culture. The postulate states that you must meet the following to pass:

- Organism must be found in all suffering from a disease and not in healthy subjects
- Organism must be isolated from subject and cultured
- The cultured organism is introduced into a healthy subject
- The organism must be reisolated from the now infected subject

Noguchi was a researcher looking at dementia and spirochetal illness.. Found spirochetes in 12 of 70 brains. Said that he knew others were there but could not find them. He was a genius in the field of spirochetal disease. To this day, Noguchi appears on the Japanese yen. Noguchi recognized that lack of corkscrew was not lack of evidence.

Spirochete can penetrate any cell in the body. Syphilis is not the only brain infection which can cause dementia (HIV and others).

Antibiotic treatment with reversal of blood testing results from positive to negative is not equal to a cure. "One night with Venus, one year with Mercury" was a saying from the early days of syphilis. Mercury being a heavy metal that was used to treat syphilis.

Intracellular pathogens – Chlamydia, virus, spirochetes, some bacteria

Spirochete can break up into granules. DNA in healthy cell does not exist in cytoplasm. Borrelia puts DNA and granules into nerve cells. Borrelia DNA locks onto human DNA. DNA incorporates itself into the human DNA.

Plaques in Alzheimer's are always round and may or may not have an amyloid core. The number of plaques relates to the severity of the dementia.

Spirochete can transform to a cyst in less than one minute in adverse conditions.

Plaques are round because cysts of spirochetes are round. DNA evidence exists that shows that Borrelia exists in brain tissue in Alzheimer's.

Dr. Robert David Tuft

"Occult Maxillofacial Infection and Chronic Fatigue Syndrome"

Note: As this presentation was not directly related to the topic of Lyme disease, the notes may be more abridged than other portions of this document.

Chronic Fatigue Syndrome has been around for quite some time and goes by several different aliases. Descriptions back to 1978. Formally defined in 1988 after CDC study in Incline Village, Nevada.

The average CFS patient has seen at least 10 doctors before working with Dr. Tuft. Must first rule out treatable or correctable fatigue conditions such as:

- Malignancy
- Auto-immune disease
- Localized infection
- Subacute bacterial diseases
- Endocarditis
- Lyme disease
- Tuberculosis
- Fungal infection
- Parasitic disease
- HIV
- Chronic psychiatric disease
- Personality disorder
- Chronic inflammatory disease

- Neuromuscular disease
- Endocrine disease
- Drug dependency
- Medication side effects
- Other chronic diseases

There is no biomarker for CFS. Pseudo-scientific testing abounds such as hair testing, saliva testing, mitochondrial energy, stool studies, lab created Lyme studies. Recommended tests for CFS:

- Urinalysis
- CBC
- SED rate
- SMAC 20
- ANA
- Rheumatoid Factor
- Thyroid

Koch's Postulate – organism that was uniformly associated with disease, isolate, grow in pure culture, inoculate a non-infected animal, induce disease, recover disease and regrow in pure culture. This makes everything easy. The last disease that was solved with Koch's postulate was H. Pylori. Drank H. Pylori, got sick, took antibiotics, got well.

There is a worldwide incidence of CFS which argues against vector transmission. No evidence of person-to-person spread or sexual transmission.

Some surveys suggest 4% of population has CFS. Prevalence 2-4 x in women than in men which suggests a hormonal component. Income and education appears to make no difference. Argues against nutritional factors or substance abuse.

CICs (circulating immune complexes) are often found. ANA antibodies often observed. Hypercoagulability is observed in 84% of people with CFS.

Dental Issues

63-77% had gradual onset. He talked a lot about dental and jaw issues which can cause systemic effects. There are links between Oral/Maxillofacial infections and CFS.

Cavitations – often a cause of trigeminal neuralgia where the trigeminal nerve goes through areas of infection in the jaw bone.

Treatments - oral surgical bone debridement (removal of infectious or non-living tissue), low dose anticoagulants, culture specific antibiotics, HBOT if extensive.

His hypothesis is that much of CFS is caused by dental and jawbone infections.

Q: Why do we leave dead tissue behind with root canals? A principle of surgery is to never leave dead tissue behind.

A: Adequate removal of dead tissue is critical or people never get well. Success rate for root canals is 50%. Tells most patients to try it knowing it will not work 50% of the time and will result in extraction. Success relates to extent of infection when root canal is performed.

Talked about using EAV to find teeth issues and removal of tooth has resulted in resolution of chronic disease and many others.

CAVITAT – ultrasound – bone is not amenable if at all. He gets lots of positives on CAVITAT that do not show up on SPECT scan. Bone scan is still the gold standard. CAVITAT takes years to figure out specificity and sensitivity.

Dr. Daniel Shoskes

“Novel Therapies for Chronic Prostatitis: Role of Nanobacteria”

Note: As this presentation was not directly related to the topic of Lyme disease, the notes may be more abridged than other portions of this document.

Stages of Prostatitis

1. Acute Bacterial prostatitis
2. Chronic bacterial prostatitis
3. Chronic Pelvic Pain – 85% of men with prostatitis
4. Asymptomatic inflammation

Theories

- Persistent infections
- Inflammatory or autoimmune disease – chemical reaction to foods or chemical reaction to urine
- Neuromuscular Spasm
- Intersistital Cystitis

Antibiotics show no effect compared to placebo but 30-60% may improve as a result of direct anti-inflammatory effects. Anti-inflammatories that are useful include Quercetin and Bee Pollen. Quercetin 1 – 1.5 grams per day. Quercetin is found in onions, green tea, spice, grapes, red wine. It is a potent antioxidant and anti-inflammatory. It has been useful in 75% of those with prostatitis if cultures were negative. Prosta-Q is a specific product that helps to improve absorption of Quercetin and Saw Palmetto.

Nanobacteria are very small organisms that produce calcium apatite in response to stress. They are smaller than any other bacteria found. They are implicated in coronary artery plaque, kidney stone and malignant calcification. Respond to chelation and tetracyclines in vitro.

Neuromuscular therapies include physiotherapy or trigger points, biofeedback, alpha-blockers, anti-epileptic agents such as Neurontin or Dilantin, and anti-depressants such as Elavil.

Approach to therapy includes an **antibiotic trial** with or without prostate massage and alpha-blockers, **anti-inflammatory** interventions such as Quercetin or Prosta-Q and **Neuromuscular** interventions such as Elavil, Neurontin, acupuncture or physical therapy.

Realize that medicine is an art, not a science and there is still much road to travel. We the patients can be our doctor's teachers and impact the future of medicine for those that come behind us.

Dr. Bobbi Lutack, ND

Voted one of Seattle's Best Doctors 2003
"Antibiotics and Autoimmune Disease"

History – Thomas McPherson Brown MD

- 1939 – mycoplasma was isolated
- 1974 - H. Pylori associated with stomach ulcers
- 1980? - Chlamydia linked to heart disease

Infectious disease causes acute and chronic illness.

Everything is naturopathic. It depends on how you use it. She is not against antibiotic use.

Conventional Treatment

Conventional treatment of autoimmune diseases has a goal of “managing” the disease, preventing joint and organ damage, and preventing loss of function while managing pain. This is often done with:

- Analgesics: NSAIDs
- Steroids: prednisone
- Disease-modifying antirheumatic drugs (DMARDs): Methotrexate, Hydroxychloroquine, Sulfasalazine, Azathioprine
- Biologic agents: Enbrel, Remicade

Side effects that may result from conventional treatment of autoimmune diseases include:

- Hypertension
- Diabetes
- Infections
- Cataracts
- Osteoporosis
- Gastrointestinal problems
- Cardiovascular problems
- Retinal damage
- Increased risk of cancer

Disease Mechanism and Protocols

Cell-wall deficient (CWD) bacteria, excessive inflammation, immune system modulation, genetic predisposition. Hormonal and environmental factors also play a role.

Biggest environmental stress is stress itself. SIgA is first line of immunity and if decreased as you eat food, the protein gets into bloodstream and you react to everything – this is called “Leaky Gut”.

Marshall Protocol

One of the key items with the Marshall Protocol is the restriction of Vitamin D. You also take Benicar 40mg every 6-8 hours. This helps to protect against a herxheimer and is anti-inflammatory and anti-fibrotic. Dr. Lutack does not focus as much on the Vitamin D restriction. This drew applause from the audience. MP also uses Minocycline 12.5-25mg every 12-24 hours slowly titrate up to 100mg every other day (takes about 3 months to get to that level). Other antibiotics are not allowed and the patient can take no steroids. More information is available at www.marshallprotocol.com.

Dr Lutack has 1 patient on the protocol. The protocol consists of three phases:

- Phase 1 – minocycline for 3-6 months
- Phase 2 – pulse dosing of Zithromax for 12 months. Start with 31mg once every 10 days. Then 62mg every 10 days, 93, 125, and finally 250 once every 10 days. Then go to stage 3. Stage 2 includes stage 1.
- Phase 3 – Bactrim DS – 12-36 months. Start with ¼ tablet every other day and work up to 1 tablet. Clindamycin is used if you do not tolerate Bactrim.

Full remission is defined by a resolution of symptoms, absence of a herxheimer, return of blood work inflammatory markers to normal (CRP, triglycerides, alkaline phosphatase).

With the Marshall Protocol, it is advantageous to continue with minocycline and Benicar for the same time it took you to get resolution of symptoms (3 years for example) and then also to continue yearly.

Autoimmune Diseases

- SLE (Lupus)
- RA (Rhematoid Arthritis)
- GWS (Gulf-War Syndrome)
- ALS
- Parkinson's
- CFS
- Fibromyalgia
- Polymyositis
- Scleroderma
- MS
- Lyme
- IBD (Irritable Bowel Disease)
- Graves
- Sarcoidosis
- Hashimotos

Dr. Lutack does not have one Fibromyalgia patient that does not also have Hashimoto's.

Side Effects of Treatment

- Herxheimer – how do you differentiate between the herx reaction and the disease? It is very hard to do.
- Dysbiosis and Leaky Gut
- Hyperpigmentation in skin
- Benicar related side effects with other antibiotics including possibly severe or life threatening herx reactions

Lab Tests and Markers

- Vitamin D both active 1,25 and 25
- RA Factor
- ANA
- ESR (Sed Rate)
- CRP (C-reactive protein)
- Creatinine and Bun
- % Lymphocytes
- Alkaline Phosphatase
- Triglycerides
- Lyme Western Blot
- Mycoplasma

Naturopathic Augmentation

- Bromelain – timing important – ½ hour before food or two hours after – 200mg three times a day has phenomenal anti-inflammatory and anti-microbial effects.
- Give Bromelain with Circumin 300mg three times a day. Can be as effective as cortisone. Bromelain drives antibiotics deeper into the tissues.
- Quercetin – 300mg three times a day as an antioxidant and antiviral.
- She uses Bromelain, Circumin, and Quercetin instead of Benicar.
- EFAs – DHA vs. EPA – 6 grams per day. Likes Cod Liver Oil. Up to 9 grams or one tablespoon per day
- Spices – garlic, cinnamon, turmeric, and others can be very valuable.
- Acidophilus – brands are different. Lots on the market with strains of bacteria that you don't want and none of the good stuff. Pharmax HLC, Culturelle, Jarrow, and Florastor were mentioned as good options.
- Antifungals – Fluconazole vs. natural option depends on cost, side effects, and effectiveness. Some options include oregano oil, caprylic acid, grapefruit seed extract. 100-150mg couple times a week for Diflucan is often enough. No longer uses Nystatin.
- Antioxidants – Vitamin C, Vitamin E, Selenium, CoQ-10, Zinc, Vitamin A
- Diet!!!! Organic, whole foods, hypoallergenic, anti-inflammatory. White rice, turkey, pears is the real allergy elimination diet. She takes out the 12 that are the most common allergenic foods.
- Sleep
- Exercise
- Stress – treat adrenals – solid extract of licorice, rhodiola, ginseng, withania
- She also mentioned and likes Emer'genC.

Dr. Israel Rubinstein

“Immunomodulatory Effects of Macrolides in Human Diseases”

Note: As this presentation was not directly related to the topic of Lyme disease, the notes may be more abridged than other portions of this document.

Macrolides such as Biaxin and Zithromax can be useful for treating people with respiratory infections. They may also modulate the immune system in addition to being anti-infective agents.

Several studies have shown positive effects of macrolides in asthma. They also inhibit eosinophil-induced inflammation which may be useful for treatment of patients with asthma.

Biaxin has been shown to reduce the size of nasal polyps associated with sinusitis.

The mechanism of action with macrolides for respiratory diseases may be:

- Lessen inflammatory responses in the lung
- Normalize mucus secretion
- Reduce bronchial hyperresponsiveness
- Decrease sputum discharge
- Reduce leukocytes in the lung

The main points made by Dr. Rubinstein were as follows:

- Macrolides possess immunomodulatory and anti-inflammatory effects
- Studies have confirmed the benefits of macrolides in respiratory diseases