

Lyme and Co-Infections and Integrative Approach

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Disclosure: I have no financial ties to any medication or supplement manufacturers.

Disclaimer

The following information is for informational purposes only, and should not be misconstrued as medical advice. All supplements are for support of the body's own healing process, and are not intended to diagnose, treat, or prevent any disease.

Anyone reviewing slides or handout must seek input from their own healthcare provider to establish personal diagnosis and treatments plan.

Overview

Review bacteria in "Lyme Disease"
Discuss findings by Global Lyme Alliance
Persistor Organisms Strategies
Covid19

Overview

- Borrellia
- Babesia
- Bartonella
- Ehrlichia/Anaplasmosis
- Rocky Mountain Spotted Fever
- Q fever
- viruses

Scope of Disease

2 Million in US suffer profound disability from post-treatment Lyme disease syndrome (PTLD) by the year 2020.

Borreliosis has been found in every state and every continent

Found in prehistoric Iceman and egyption tomb

Most concentrated east coast, west coast, Wisc/Mn/Iowa border

Lyme New Infections 2018



Borrelia

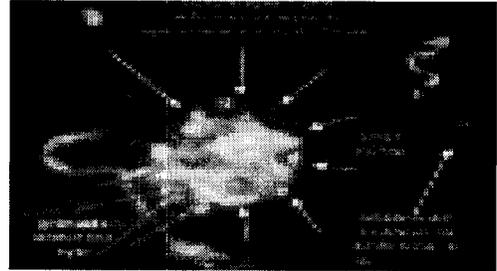
Spiral bacteria, can be in any body tissue.

Gradual onset of symptoms, **moves around**.

- Heart pain and irregular rhythms.
- Joint and muscle pain and or swelling.
- Nerve Pain and numbness and or weakness.

Name a body organ, name a symptom, Borrellia can cause it.

Borrelia



Borrelia

Shape shifter

Can penetrate and hide in scar tissue, bone, nerve, fibroblasts (which produce structure of body).

Cyst form: hides impenetrable to most antibiotics

Biofilm protects from antibiotics

Persists Embers ME, Barthold SW, Borda JT, Bowers L, Doyle L, Hodzic E, et al. (2012) Persistence of *Borrelia burgdorferi* in Rhesus Macaques Following Antibiotic Treatment of Disseminated Infection

Borrellia persists: Primate Study

“These results demonstrate that *B. burgdorferi* can withstand antibiotic treatment, administered post-dissemination, in a primate host....”

“ This finding raises important questions about the pathogenicity of antibiotic-tolerant persisters and whether or not they can contribute to symptoms post-treatment.”

<https://pubmed.ncbi.nlm.nih.gov/22253822/>

Lyme persisters

Feng J, Li T, Yee R, et al. Stationary phase persister/biofilm microcolony of *Borrelia burgdorferi* causes more severe disease in a mouse model of Lyme arthritis: implications for understanding persistence, Post-treatment Lyme Disease Syndrome (PTLDS), and treatment failure. *Discov Med.* 2019;27(148):125-138.

Borrelia Can Persist

10% of people infected report

- They are still VERY SICK 10 years later
- Poorer quality of health than those with CHF
- Migratory muscle, nerve, joint symptoms identical to the symptoms they had after the tick bite that improves with antibiotics.

Borrelia Can Persist

•This is often called “Post Lyme Syndrome” by those who believe persistent infection does not exist.

•Called “Chronic Infection” by those who observe persistent infection does exist.

Called “Persister Lyme” by those seeking to find new strategies to support the body in healing symptoms triggered by persister organisms.

Borrellia persists

Round bodies

Biofilm

Persister cells are bacterial cells that are not affected by antibiotics.



Borrelia requires Inflammation

•Borrelia does not have a complete set of genes

•To Reproduce, it activates host immune system

•Causes inflammation

•Inflammatory factors are use by Borrelia in reproduction

•Wooten RM, Weis JJ. Host-pathogen interactions promoting inflammatory Lyme arthritis: use of mouse models for dissection of disease processes. *Curr Opin Microbiol.* 2001;4(3):274–279

<https://pubmed.ncbi.nlm.nih.gov/11378478/>

**Target Inflammation
to
decrease dis-ease**

What causes Inflammation?

•Standard American Diet (chips, sugar, processed)

•Lack Of Sleep

•Stress (increases cortisol, suppresses immune function)

•Mold

•Heavy Metals

•Trauma

•Co-Infections

Strategies for overcoming Lyme

Minimize Inflammation

(Whole foods, low carbs, 8 hr sleep, daily exercise, daily meditation, connect with others)

Maximize Immune Function:

Mushrooms extracts (cordyceps , Immune Factors (Multi-Immune), Thymic protein A, Vitamin C, H2 Water,

Identify and control Co-Infections that create inflammation that supports persistent infection.

Babesia

Malaria-like protozoan, (Red Blood Cell parasite).

High fever and chills at the onset possible.

Over time, night sweats, air hunger, an occasional cough, persistent migraine-like headache.

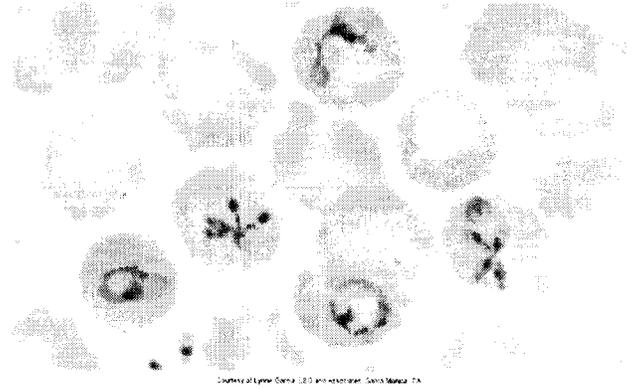
Chronic severe neck pain.

Vague sense of imbalance without true vertigo.

Severe brain fog, wrong word, mis-speaking, poor short term memory

Debilitating fatigue and post exertional malaise .

Babesia



Bartonella

•Infect and persist in Red Blood Cells and endothelial cells, that line blood vessels and lymph vessels and glands.

•Gastritis, abdominal pain (mesenteric adenitis).

•Pain in soles of feet, especially in the AM

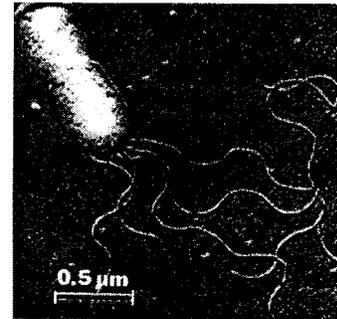
•Tender subcutaneous nodules along the extremities

•Red rashes that look like stretch marks, that come and go.

•Easy Bruises

•Horrible anxiety, OCD, sudden mood rages.

Bartonella



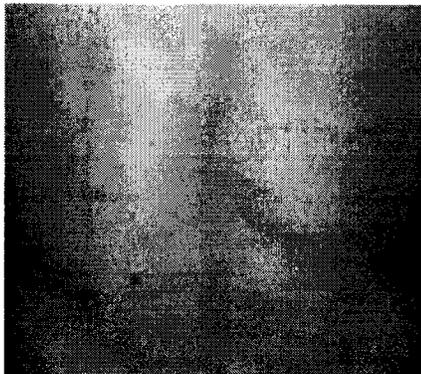
Bartonella Rash

•Stretch mark like stria

•Come and go

•Back, thighs

•



Ehrlichia/ Anaplasmosis

•White Blood cell parasite. Initially very sick.

•Lowers WBC count.

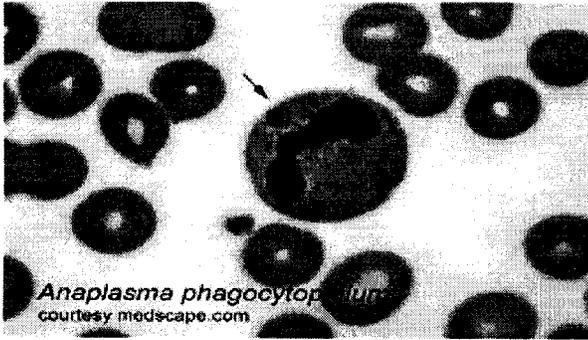
•Can reduce platelets that regulate bleeding, causing bruises.

•Increases AST/ALT.

•Headache, muscle aches, ongoing fatigue, very difficult to distinguish from other infection.

•Peripheral Neuropathy and joint symptoms in <10%

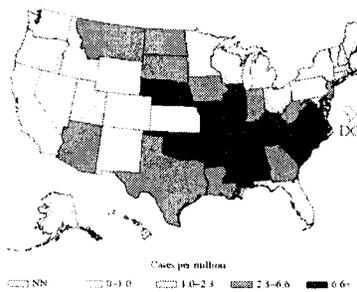
Anaplasmosis



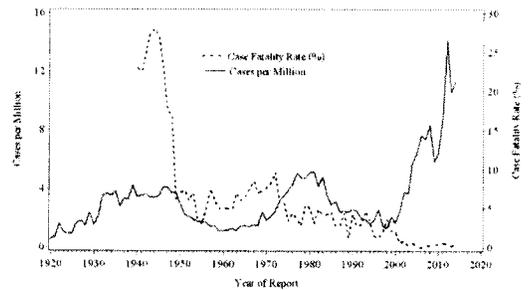
Rocky Mountain Spotted Fever

- Not usually spotted
- Not usually found in Rocky Mountains
- Commonly seen throughout the United States.
- Fever, headache, stomach pain, nausea and or vomiting, muscle pain, extreme fatigue.
- Rash may persist for life.

Distribution RMSF 1993-2014



Rocky Mountain Spotted Fever



Rocky Mountain Spotted Fever



Q Fever

- Coxiella burnetti bacteria
- Acute symptoms include high fevers up to 105°F, severe headache, malaise, myalgia, chills and/or sweats, cough, nausea, vomiting, diarrhea, abdominal pain, chest pain.
- Later symptoms include hepatitis and Pneumonia or chronic endocarditis.
- Carried by goats and sheep.

Powasan Virus

- Fever
- Headache
- Vomiting
- Weakness
- Seizures
- Encephalitis (swelling of the brain)
- Meningitis (swelling of the membranes that surround the brain and spinal cord)

Other viruses EBV, HHV6, CMV

- Persistent fatigue,
- Worse with exercise.
- Sore throat, lymphadenopathy, and other viral-like complaints.
- High liver enzymes (AST/ALT and low WBC.
Autonomic dysfunction (Sympathetic/parasympathetic imbalance.
POTS.

What to do?

- Think carefully about onset of symptoms
- Timing:
 - High fever initially?
 - Symptoms come and go?
 - Return every 3-5 days, every 3 weeks, 4 weeks?
- Severity
- Location
-

Gradual Onset

- Borrelia
- Bartonella

Sudden Onset

- Babesia
- Ehrlichia
- Anaplasmosis
- Q Fever
- Rocky Mountain Spotted Fever
- Powassan Virus

Easy Bruising

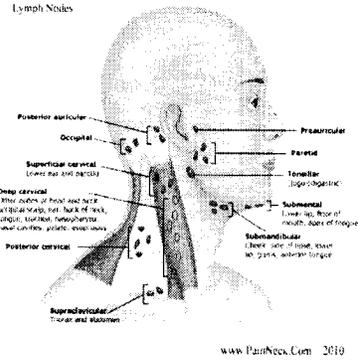
- Bartonella
- Ehrlichia
- Anaplasmosis
- Rocky Mountain Spotted Fever
- Q Fever

Lymph Node swelling

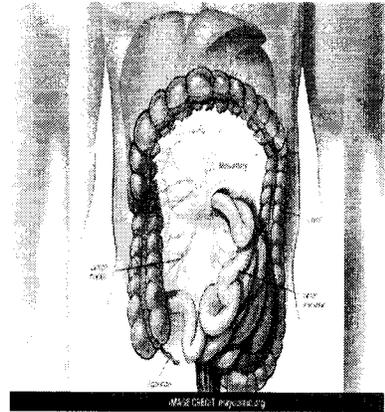
- Bartonella
- Mycoplasma
- Chlamydia Pneumoniae
- Viruses
-

Lymph node swelling

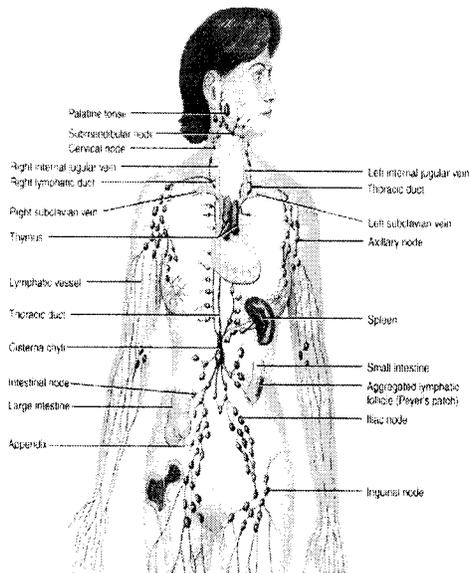
Lymph Nodes



www.PainNeck.Com 2019



www.elsevier.com



Severe Anxiety, Sudden onset OCD

- Bartonella
- Viruses
- Strep PANDAS



Athletic Young Person with Severe Neck Pain

- Babesia Duncani
- Babesia Microti



How to support healing?

- Reduce inflammation
- Get 8 hours of sleep
- Manage stress
- Meditation (headspace App) or HeartMath
- AlphaStim for anxiety and pain.
- Eat whole foods, mostly vegetables, not too much.
- Avoid sugar, alcohol, caffeine.
- Avoid chemicals, pesticides, herbicides.



How To Support Healing?

DO NOT EAT SUGAR

DO NOT EAT FLOUR

DO NOT EAT SUGAR

DO NOT EAT FLOUR

DO NOT EAT SUGAR

Take Probiotics while on antimicrobial therapy

Match treatments to infections

•Doxycycline or minocycline

Borrelia, bartonella, anaplasmosis, ehrlichiosis, Q Fever, Rocky Mtn SpF

•Cefuroxime or Cefdiner: Borrelia

•Azithromycin or clarithromycin Lyme, Bart, Bab

•Flagyl or Tindamax Cyst forms Lyme

•Plaquenil Babesia and cyst form Lyme

•Mepron or Malorone and Clindamycin Babesia

Immune Strengthening

-
- To strengthen immune system ,
 - Resistance training
 - Stretching exercises
 - Balancing like Tai Chi or Yoga
 - Add Aerobic exercise very last.

Immune Strengthening

-
- When starting to feel better, to
- Sauna, detox baths Alt Hot/cold
 - To sweat out toxins
 - To kill bacteria
- Mushroom extracts (Cordyceps,
 - Stamets 7)
- Transfer Factor Multi-Immune™
•by Researched Nutritionals
 - ProBoost Thymic Protein A
 - 3x/d
-

Energy Medicine

- WellnessPro
- Frequency Specific Microcurrent
- Acupuncture to move the Qi
- Intention and visualization
- Energy Healing ReiQi and others
- Prayer

Herbs Many Different Choices

- Cowden Support Program
- Beyond Balances
- Buhner Support Program
- Liposomal Cinnamon 75 mg/Clove 25mg/Oregano 75 mg
2 capsules 2-3 times daily before meals
- Byron White formulas Detox 2 and A-L, A-Bart, A-Bab, A-V Start very low, increase very slowly
Somalata Out Of Lyme, Out Of Lyme+, Adapt Divine
- Biocidin LSF 2 pumps SL twice daily then brush teeth

Cinnamon/Clove/Oregano Oil

Zhang research

“Selective Essential Oils from Spice or Culinary Herbs Have High Activity against Stationary Phase and Biofilm *Borrelia burgdorferi*” Front Med (Lausanne). 2017 Oct 11;4:169.

Oregano

Cinnamon Bark (Ceylon)

Clove Bud

Cinnamon/Clove/Oregano Oil

Cinnamon Bark (Ceylon)100 mg/Clove Bud 25 mg/Oregano oil 75 mg in liposomal formula

Start one daily, increase every 3-7 days works up to 2 three times daily with or without food

Combine with other herbal products to help increase chance of destroying Persister organisms.

[https://www.store.rxandhealth](https://www.store.rxandhealth.com/collections/doctor-inspired-formulations/products/lipoc)

[.com/collections/doctor-inspired-formulations/products/lipoc](https://www.store.rxandhealth.com/collections/doctor-inspired-formulations/products/lipoc)

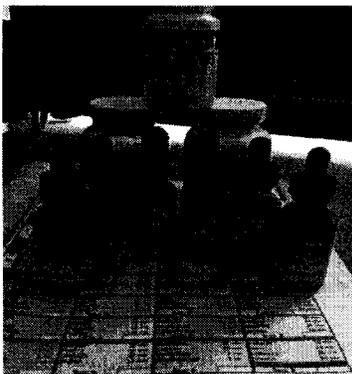
Cowden

- Complete 9-18 month program supports detox,
- Heavy metals binding,
- Supports tissues, and
- Targets all co-infections
- Rotates 12.5 days of each herb combination after 79 days on main herbs.

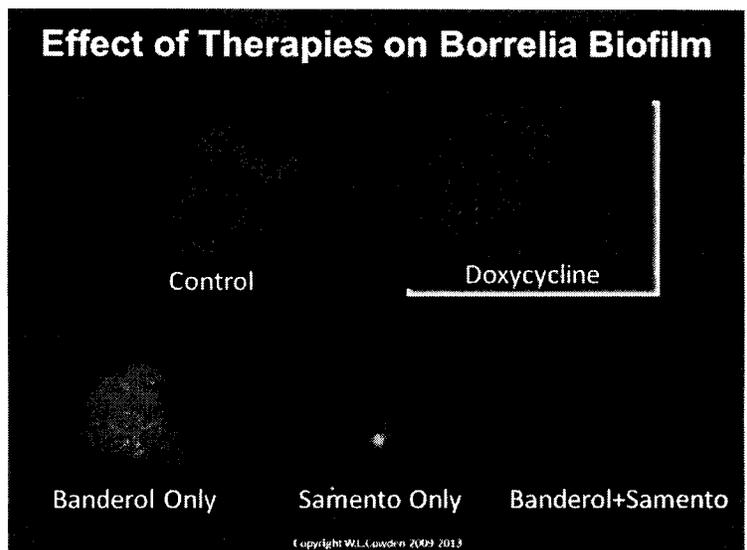
Lee Cowden, MD



Cowden Support Program



Effect of Therapies on Borrelia Biofilm



Beyond Balance

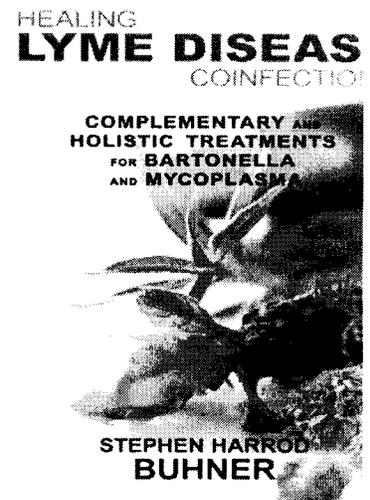
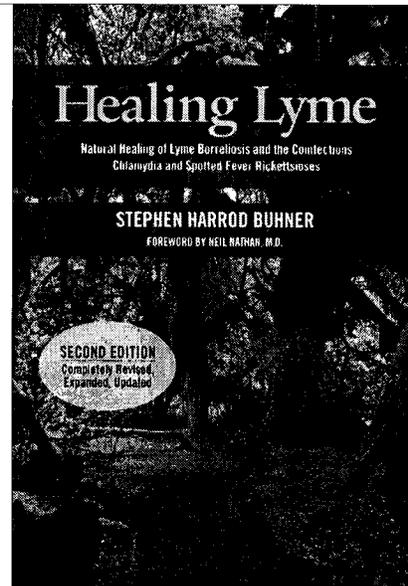
usan McCamish founder and researcher
ertified Traditional Naturopath,
utritional Consultant, and
herbalist

- Treated her son, helped him recover,
- went on to develop herbal line to treat others.

Beyond Balance

- Glycerite tinctures
- No Alcohol
- Tastes sweet
- Tolerated by children
- Very powerfull, start low, go slow.
- I most often use BB-1, BAR-1, BAB-2, IMN-R, and ToxEase
- Start at one drp, once daily, max 10-20 drops 2xd

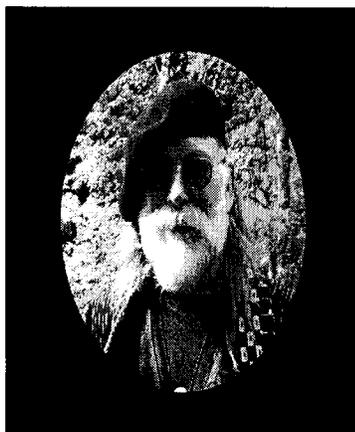
Beyond Balance



NATURAL TREATMENTS FOR LYME COINFECTIONS

ANAPLASMA, BABESIA, AND EHRLICHIA

STEPHEN HARROD BUHNER



Buhner Herbs

- Books outline use
- Buhner is a researcher, not in practice for 15 years
- Start with what you know in basic protocol.
- Add others one by one.
- Read side effects, herb-drug interactions.
- Consult knowledgeable herbalist.

Buhner Herb Resources

Kate from Woodland Essence has been working with Buhner for years, and harvest herbs at the right time to get expected potency.

<https://woodlandessence.com/collections/buhner-extracts/Buhner-Extracts>

<http://buhnerhealinglyme.com/>

Herbs Ayurvedic Somalata “Out of Lyme”

•“Results and Conclusion: Out of 32 enrolled subjects in the study, 28 subjects showed ELISA negative for IgG at the end of study visit. The Symptom score also showed significant results. The study showed that a polyherbal combination of ‘Out of Lyme’ and ‘Divine 9 Adaptogen’ Immunoprotector are very much effective in the treatment of Lyme disease.” Overall this clinical experience has established a useful treatment for Lyme disease without causing any unwanted side effects.

•Sarang, D., Shrirang, C., Vrushali, C., & Abhijit, M. (2018). MANAGEMENT OF LYME DISEASE WITH A POLYHERBAL COMBINATION OF ‘OUT OF LYME’ AND ‘DIVINE 9 ADAPTOGEN’ IMMUNOPROTECTOR.

Herbs Ayurvedic Somalata “Out of Lyme”

- Developed by PhD Ayurvedic physician
- Small non blinded research published study
- Every day Divine 9 Adaptogen
- Alternate month Out of Lyme/Out of Lyme+
- Chose “Goodbye Aches&Pains or
- Mind Power & Stress Relief
- Often combined with Cinn/Clove/Oregano Liposomal formula Hopkinton Drug

Confluence of influences

Lisa Najarian 2015 dx Lyme, fought to survive

Neil Spector MD “Gone In a Heartbeat”

Steven and Alexandra Cohen Foundation

All sat together at a Lyme fundraiser, and Dr. Spector recommended using “High through-put, Big Data analysis to solve Chronic Lyme Disease.

\$60 million was donated, 25 research projects funded, many still being completed.

Hopeful, basic science is being published.

Proving Lyme is real

People often feel poorly after course of treatment

Treatments can have adverse effects

Persistor organisms can occur, and may be responsible for the ebb and flow of symptoms seen in those with “Post Treatment Lyme Disease”

<https://globallymealliance.org/the-research/notable-articles/>

Some Novel Treatments

GlobalLymeAlliance.org

Used High thru-put/big data analysis 4366 medicines that may have an affect.

Disulfiram

Methylene Blue

Cinnamon/Clove/Oregano Liposomal

Clinicians tried Tx empirically

Not willing to wait as patients suffered.
Obtained informed consent
Tried something
Observed effect
Told other like-minded physicians
Refined approach
Repeated

Observations are not proof

Absence of proof is not proof of absence.
Double blind, placebo-controlled studies are still needed.
Let's explore what some providers think they have observed, knowing more science is needed

Disulfiram (DSF)

Disulfiram was identified as a highly active compound against borrelia in vitro
Big data. Hi thru-put study looked at 7450 drug molecules from different chemical libraries
May 2019 Ken Leigner MD published 3 case histories that improves and remain improved 28 months later after 90 day treatment DSF

Disulfiram (DSF)

DSF seems to cause Borrelia cells to become unstructured, and those deformed Borrelia that survive are unable to reproduce when re-introduced into living organisms.
Binds to LDH (detox enzyme) (may explain impaired detox in those with Lyme)
Binds to Manganese Copper Nickel (may adverse symptoms to those with nickel allergy, as it binds out these molecules stores in bone)
Binds to Glutathione (cellular energy source, required by high energy borrelia, explaining fatigue in those taking it)

Disulfiram

Generally safe, with long history of safety in population with impaired immune function.
Alcoholics have been using it to prevent relapse for 50 years.
Impairs Acetaldehyde Dehydrogenase enzyme which converts alcohol to acetaldehyde,
Makes people severely nauseated fatigued brain fogged if they consume alcohol IN ANY FORM after taking Disulfiram.

Disulfiram Adverse Effects

Has possible serious adverse effects
Encephalopathy (diffuse brain dysfunction)
Neuropathy, peripheral, cranial, and autonomic
Possible Irreversible damage to basal ganglia
Drug Induced hypomania, depression, psychosis
Hypertension

Disulfiram

In my practice on small group 127 people in 2019-2020

About half report near complete resolution of symptoms

25% report 75% improvement

10% report significantly worse

15% mostly unchanged or worse, few significant symptoms better

Disulfiram possible adverse effects

3/6 with Lyme-Parkinsons better

3/6 with Lyme Parkinsons worse

20% some degree neuropathy 1 severe

4/127 mental disturbance severe enough to need medication

This was not a research project, just an observation from carefully checking in with each person every 2 weeks as possible.

Disulfiram

Symptoms improved over 16 weeks, then leveled off.

Achiness

Mental clarity

Sleep disturbance

Energy

Overall well being

Before Starting Disulfiram

Open Detox Pathways with Milk Thistle, NAC, ALA, Methylation support

Clear constipation and support 2 soft BM daily

Water ½ oz /pound body weight divided over 8 hours. 2-3 oz every 15 minutes.

CBD oil 15-45 mg ORGANIC CBD 2-3 x daily for pain, sleep. Get off other drugs that may interact.

Avoid alcohol and vinegar in food and body lotions

Disulfiram-Medication combo to avoid

Drugs that are known to interfere with the dopamine / norepinephrine system include, but are not limited to:

•Bupropion (Wellbutrin IR/SR/XL, Buspar, Amfebutamone)

•Amphetamines (Adderall, Dexedrine, etc.)

•Methylphenidate (Ritalin, Concerta, Focalin, etc.)

•Cocaine (Occasionally used in dental procedures, and a known substance of abuse.)

Drugs Metabolism Inhibited by DSF, Increase toxic effect

Drugs known to have adverse effects when used concurrently with disulfiram include

amitriptyline, isoniazid, and metronidazole (all with acute changes in mental state), phenytoin,

some benzodiazepines (like Ativan, zolpidem, Xanax),

morphine, pethidine, and barbiturates.

Careful consideration of risk/benefits with MD

Who should not take Disulfiram

Those who might get exposed to alcohol.
People with elevated liver enzymes.
Those with history of psychosis (Dr Liegner said there was 8 reported cases between 1996 and 2016.) I saw 4 in my practice. (Reversible)
History of seizures, even remote history.
Numbness in fingers and toes.
Impaired balance.
Hypertension and heart disease.

Preparing to take Disulfiram

If taking medications that interact with DSF, try to understand
Why are you taking that medication?
Is it medically necessary?
Can anything that doesn't interact be used?
Work with your prescriber to find another way to control that symptom, or do not use disulfiram.

Get familiar with foods to avoid on Disulfiram

AVOID FOODS containing

Alcohol

Vinegar (includes condiments like ketchup, pickles, Cole slaw, mustard, mayonnaise, Worcestershire sauce)

Sugar Alcohols (sorbitol, mannitol, isomalt, maltitol, lactitol, xylitol and erythritol) into alc

Sugar that gets metabolized into alcohol by gut candida.

Foods to Avoid with Disulfiram

Caffeine/coffee/tea because caffeine builds up because excretion is blocked by DSF.

(caffeine build-up can cause severe anxiety and palpitations and insomnia)

Vanilla in alcohol

Stevia in alcohol.

Anything fermented: (kombucha, hard apple cider, fermented veggies like sauerkraut).

Disulfiram Liposomal Form

Liposomal formula from Compounding Pharmacy
May:
Decrease abnormal liver function tests
Decrease neuropathy (numbness in toes/fingers)
May be more potent, dose reduction may be needed.
Highest dose I ever Rx'd for DSF LSF 125 mg 2xd

Disulfiram Liposomal Dosing

Liposomal Disulfiram may be compounded down to 31.25 mg and used every 3-7 days to minimize neurologic symptoms.

Disulfiram (not liposomal) can be compounded to 5-10 mg for most sensitive patients.

Disulfiram

Dosage is individualized.

Start DSF 250 mg 1/8 - 1/4 tab or

DSF LSF 32.25 mg every 3-7 days x14 days

Increase every 14 days as directed by 32.25 or 62.5 mg, up to 250 mg, split doses 32.25-62.5 in 2-3 doses after meals.

Check in with prescriber before EVERY dose increase.

Disulfiram prevent adverse reactions

Avoid alcohol and vinegar (nausea vomiting fatigue)

Avoid Sugar alcohol (xylitol, sorbitol, mannitol etc)

Causes dizziness and anxiety

Avoid Sugar (sugar plus yeast in gut makes alcohol) causing nausea, dizziness, fatigue.

Avoid topical products with alcohol (creams, lotions, shampoo, conditioners) causes fatigue, anxiety, rashes

Prevent DSF adverse effects

Vit C 250 -1000 with food 3xd binds nickel in food

Zinc 15-50 mg with food 3xd binds nickel in food

Monitor copper zinc level

Monitor CBC CMP every 2-4 weeks, check in with clinic before increasing dose.

Acetyl-L-carnitine 500 mg (2) 3x/d may help prevent nerve damage

Benfotiamine twice daily for nerve support

B12 5000 mg daily no alcohol no sorbitol

Disulfiram Summary

Very effective in many who had recurrent symptoms after stopping herbs and antibiotics

May kill antibiotic resistant persister forms.

May lead to long term remission of post treatment Lyme Disease and Babesia, Bartonella usually needs additional therapy. Studies are pending.

<https://clinicaltrials.gov/ct2/show/NCT03891667>

Significant adverse effects need close supervision.

Methylene Blue

In Vitro research suggest Methylene Blue may help kills persister and active forms of Borrelia and Bartonella Zhang et al <https://pubmed.ncbi.nlm.nih.gov/32276590/>

Research has not been done on animals or humans to establish if this is true in living beings.

Cannot be absorbed orally, unless compounded into a liposomal formula.

Many clinicians have tried it in combination with other antibiotics

One Clinician reports these combinations work for Bart

- (rifampin or rifabutin) plus (azithromycin or clarithromycin) plus (methylene blue or oregano oil)
- (rifampin or rifabutin) plus (doxycycline or minocycline) plus (methylene blue or oregano oil)
- (azithromycin or clarithromycin) plus (doxycycline or minocycline) plus (methylene blue or oregano oil)
- (rifampin or rifabutin) plus (Bactrim DS) plus (methylene blue or oregano oil)
- (azithromycin or clarithromycin) plus (Bactrim DS) plus (methylene blue or oregano oil)

Methylene Blue

Lots of potential drug interactions: Fentanyl, Welbutrin, digoxin, phenytoin, warfarin, SSRI's, SSNI's, mirtazapine and more.

Stains tears, sweat, and urine (toilet bowl) blue.

May irritate prostate and urinary bladder.

Dosage Liposomal Methylene Blue 50 mg 1-3 twice daily, starting with lowest possible dose and increase as tolerated monthly, until effect is achieved.

Methylene Blue

Recently found helpful in 4/5 Covid19 ICU when all other options had been exhausted:

Application of methylene blue -vitamin C –N-acetyl cysteine for treatment of critically ill COVID-19 patients, report of a phase-I clinical trial. (Almadari et al)

Eur JPharmacol. 2020 Oct 15; 885: 173494.

Published online 2020 Aug 20. doi: 10.1016/j.ejphar.2020.173494

PMCID: PMC7440159

PMID: 32828741

Covid19

There is more to do than nothing

Dr. Roger Seheult MD <https://www.medcram.com/>

Discusses Supplements and medications that may support the body in preventing and early intervention in Covid 19

Covid19 Basics support your body

1. Vitamin C to bowel tolerance spread out in day
2. Zinc 50 mg daily may block viral replication (monitor serum copper/plasma zinc, may need to add copper 2 mg MWF in some)
3. Quercitin can support zinc getting inside cell
4. NAC can support the body in refreshing glutathione so it can quiet oxidative storm that occurs and leads to organ failure.

Boost Natural Killer Cell Function

Alternate Hot Cold in shower, sauna 5/1/3/1/3/1

Can boost natural killer cell activity up to 500%

Caution in those with heart disease or fragile health or children and elderly.

<https://www.mayoclinic.org/healthy-lifestyle/consumer>

Covid19 early intervention

Efficacy of glutathione therapy in relieving dyspnea associated with COVID-19 pneumonia: A report of 2 cases Horowitz

<https://www.sciencedirect.com/science/article/pii/S2213007120301350>

Liposomal glutathione 2000 mg twice daily as needed for shortness of breath from Covid19

Horowitz describes other supplements he uses.

Covid Toes

Dr. Seheult discusses Covid 19 can activate von Willibrand factor and lead to small clots in multiple organs.

Proteolytic Enzymes support the body in clearing fibrin clots.

Lumbrokinase Health Canada published on effectiveness in treating DVT's. http://canadama.com/wordpress/wp-content/uploads/2014/08/OccupHealth2001V17P111LumbroTxDVT_Edited.pdf

Nattokinase works similarly 100 mg twice daily

Resources

- www.karevrchota.com HealthNews on Disulfiram and Covid 19
- <https://www.disulfiramforlyme.com/> Interview with Dr. Kinderleir on Disulfiram
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Questions?

