Low Dose Immunotherapy: Novel Treatment for Lyme, PANDAS and Other Infections

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A Brief History

Dr. Len McEwen, an ENT doctor in the UK in the 1960's accidentally discovered that an enzyme called beta-glucuronidase seemed to "turn off" reactions to various allergens.

He went on to develop a new approach to immunotherapy using extremely low doses of antigens, called enzyme potentiated desensitization or EPD.

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A Brief History

EPD is a method of helping build immune tolerance to various allergens, but the dose used ranges from 10^{-7} to 10^{-14}. This is significantly lower than the doses used in conventional immunotherapy which are generally from 10^{-2} to 10^{-4}.

These low doses of allergens are mixed with beta-glucuronidase, which is believed to specifically induce T_{reg} cells to turn off cells that produce allergy symptoms.

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A Brief History

EPD was used in the United States up until the 1990's when the FDA banned the import of the extracts from the UK. It was recreated by Dr. Butch Shrader and renamed ultra low dose enzyme activated immunotherapy or LDA.

There are LDA mixes for foods, inhalants (molds, pollens, dust, animal danders, etc) and chemicals.

Over 350,000 doses of LDA/EPD worldwide have been given with no reports of anaphylaxis or severe reactions.

A Brief History

About 5 years ago, Dr. Ty Vincent from Kona, Hawaii started applying the concept of LDA to microbes. He realized that many bacteria, viruses, fungi and parasites were triggering an immune response that was similar to that of an environmental allergen.

For example, people who get strep throat can develop rheumatic fever or rheumatic heart disease. The infections triggers an autoimmune reaction, so even when the infection clears, the immune system continues to be activated. This is due to molecular mimicry.

Something in the immune system has confused strep for our own tissues (loss of immune tolerance).

A Brief History

Dr. Vincent started mixing homeopathic dilutions of nosodes for various microbial antigens, including strep, candida, borrellia, bartonella, proteus/klebsiella and many more from 10^{-5} to 10^{-48}. This is isopathy.

The inactivated microbial nosodes are mixed with the beta-glucuronidase and administered sublingually.

Some of the dilutions may have physiological activity, like other forms of immunotherapy, but higher dilutions likely do not.

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Molecular Mimicry

Sequences of small peptides found in host and microbe can stimulate T cell receptors or antibodies, even with just a few residues.

These activated cells then can cross react with our own cells, leading to tissue or cellular damage (inflammation).

It is believed that loss of tolerance is the primary initiating factor leading toward molecular mimicry.

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When The Immune System Goes Wrong

When you lose IMMUNE DEFENSE

- Outside Environment = ***Infection***
- Inside Environment = ***Cancer***

When you lose IMMUNE TOLERANCE

- Outside World = ***Allergy***
- Inside World= ***Autoimmunity***

What Is Self?

- At least 90% of all the cells within the human organism are not human cells, but rather microbes. However, they are integral to what a human being is and protect us from the outside world, aid in digestion and absorption of nutrients and protect our mucous membranes.
- If the immune system targets a protein on a microbe that resembles a protein in our body, you get an autoimmune disease.
- This is a key difference between the inflammation against microbes seen in "infection" versus "autoimmunity".
- Infection is the first stage of illness, autoimmunity is the potential long-term consequence.

One Bug, Many Diseases

Streptococcus pyogenes (AKA "strep throat") is known to cause several different autoimmune syndromes including:

- Rheumatic fever
- Guttate psoriasis
- PANDAS
- Chronic Fatigue
- Recurrent tonsillitis
- Post-streptococcal glomerulonephritis

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One Disease, Many Causes

Psoriasis can be triggered by various different things and look similar:

- Food allergies
- Streptococcus
- Bacteroides
- Staphylococcus
- Mycobacteria? Viruses?

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Trigger versus Catalyst

Intolerance often develops due to a catalytic event or circumstance that causes immune "agitation". The "straw that broke the camel's back"

- Vaccine, viral illness, trauma, pregnancy, intense stress…

Triggers for persistent inflammation are somewhat incidental and random, often NOT related to the catalyst.

- Environmental or food antigens, chemicals, gut flora, intracellular bacteria, "self".

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Trigger versus Catalyst

- The "catalyst" is NOT the antigen you need for treatment.
- Treat with the ongoing target antigens (triggers), not with what initiated the development of immune inflammation.
- Food allergies develop after having mono. Treating for or using EBV will not clear the food allergies.

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Restoring Immune Health

The ultimate goal is to restore immune tolerance to all of the antigens/allergens that have provoked the immune system, which means you may have to use multiple antigens to restore a patient's health.

By improving immune tolerance to these antigens, we can break the inflammatory cycle that causes many patient's symptoms.

Antigen Selection

- Based on the symptoms or disease condition.
- Evidence from labs, such as stool tests, organic acid tests, etc.
- Previous history of infection (strep, Lyme)
- Body fluids that may capture antigen.

Microbes And Disease Associations

- ***Inflammatory Bowel Disease, Irritable Bowel Syndrome:*** Mycobacteria, Stool, Probiotics, Candida, S. cervisiae, Klebsiella, Clostridia
- ***Psoriasis:*** Foods, Strep, Bacteroides, Staph
- ***Multiple Sclerosis:*** Myelin Basic Protein, Lyme, EBV
- ***Inflammatory Arthritis Conditions:*** Proteus/Klebsiella, Lyme, Yeasts, Foods
- ***Muscle and Liver Diseases:*** Enteric Bacteria
- ***Nephritis, Nephrotic Syndrome:*** Strep

Microbes And Disease Associations

- ***Interstitial Cystitis:*** Foods, Yeasts, Lyme
- ***Chronic Vaginitis:*** Foods, Yeasts
- ***Endometriosis:*** Yeasts, Estrogen, Progesterone
- ***Chronic Sinusitis:*** Foods, Inhalants
- ***Recurrent Pharyngitis:*** Strep, EBV
- ***Rosacea:*** Foods, Yeasts
- ***SLE, Myositis, PMR, others:*** Lyme, mycoplasma, EBV

Microbes And Disease Associations

There are hundreds of studies published on the association of various microbes and the autoimmune disease they cause or are associated with.

Go into PubMed and search for any condition AND molecular mimicry to find other associations.

LDI and Lyme Disease

Lyme disease occurs is 2 phases:

***Acute**:* headaches, fatigue, joint pain, back pain, fever, bullseye rash, numbness, tingling.

***Chronic**:* brain fog, joint pain, fatigue, swollen glands, numbness, tingling, burning sensations in skin, ringing in ears, mood changes, depression, insomnia, bowel changes, night sweats, headaches. There are more than 100 symptoms associated with chronic Lyme disease.

LDI and Lyme Disease

Why do antibiotics or other natural therapies fail to work?

Why do Lyme symptoms persist, even when treated early and appropriately?

Why do symptoms worsen over time?

LDI and Lyme Disease

Autoimmunity…

Lyme disease starts as an infection and may progress to an autoimmune illness as our immune response to the bacteria cross-reacts with our own tissues.

Merely treating the infection does not stop the autoimmune response that has already been triggered.

LDI and Lyme Disease

Antimicrobial therapy with antibiotics or herbal therapies may help reduce the load of *Borrelia* in the body and therefore, there is less "antigen" to stimulate the immune system.

Many of these treatments are also anti-inflammatory, which may explain why some people feel better while undergoing treatment.

However, these therapies do not fundamentally alter immune function or tolerance.

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LDI and Lyme Disease

It is not uncommon for patients to feel better while undergoing treatment, but regress or symptoms return shortly after discontinuing treatment.

Many physicians will alter the antibiotic protocol and use different drugs or combination of drugs. But what are the long-term consequences of using antibiotics long-term and does compromising our gut flora alter our innate ability to fight infection or exacerbate autoimmunity?

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LDI and Lyme Disease

If we start treating Lyme disease more like an autoimmune disease and less like an infection, we get people to a better state of health.

It is equally important to look at the health of the entire immune system as many people with Lyme disease have other allergies and sensitivities, gut health issues and other immune problems that may alter normal immune function.

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LDI and Lyme Disease

Low dose immunotherapy has been one of the few therapies I have found to effectively turn off the overreaction to Lyme.

The effective dose ranges between 6C-24C.

The challenge is to find the right dose and too strong of a dose may cause symptoms to flare and worsen. If this happens, you have proven this is the trigger.

It is safer to start with very weak dilutions (that may not do anything) and slowly increase the dose until we find the right dilution that induces positive changes in symptoms.

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LDI and Lyme Disease

If a dose is given and nothing happens after 10 days, the next strongest concentration can be given.

Once the correct dilution is found, this dose is repeated every 7-8 weeks as needed.

Booster doses can be given in between if needed if there is a regression of symptoms.

LDI and PANDAS/PANS

PANDAS/PANS/PITANS is the acute onset of new psychiatric or neurological symptoms that occur after exposure to many microbes, including *Streptococcus pyogenes (Group A strep)*, *Borrelia, Mycoplasma, Clostridia* and others.

Symptoms may include motor or vocal tics, twitching, jerking, seizures, mood changes, anxiety and OCD behaviors.

LDI and PANDAS/PANS

There is no test that "proves" what is provoking PANS according to Dr. Sue Swedo.

Conventional treatment is antibiotics, often used long-term. Sometimes immune therapies like IVIG are used.

Some children with PANDAS/PANS are on antibiotics for many months to years.

We have similar issues as with Lyme disease and long-term antibiotic use.

LDI and PANDAS/PANS

Low dose immunotherapy has been effective at reducing these symptoms with or without using antibiotics.

There are times where the tics can become so debilitating that antibiotics used short-term help reduce the load in the body. GAS is part of the normal flora, so it is not reasonable to expect a child can avoid it or will ever get rid of it.

When the dilution is correct, I have seen tics go away in days.

Management of LDI

Once you give a patient a dilution, it is important they contact you in about 10 days time to track their symptoms. I recommend to keep a log in their chart so you can easily track their symptoms and progress.

If there is no reaction after 10 days, you can safely give them the next strongest dilution (i.e. Lyme 18C to Lyme 17C). You can continue to do this until you find a dose that reacts well with them.

If you have not selected the correct antigen, you may go through a series of dilutions and nothing will happen. This simply means the antigen selected is not part of what is causing their symptoms.

Management of LDI

Once you have found their optimal dilution, you may give it every 7-8 weeks as needed.

Some patients will report feeling well after a specific dilution for only a few days and then their symptoms relapse. DO NOT give another dose until the 7-8 week mark. Giving a dose too soon will cause their symptoms to flare further. This 7-8 week rule must not be broken!

However, if they feel well and then relapse, you can give them a booster dose which is usually 1 dilution ***weaker*** than what they have previously received (if they responded well to Lyme 18C, you can give Lyme 19C as a booster). I have also used a low concentration of their target dose (0.01 ml instead of 0.04 ml) and this sometimes works too.

Management of LDI

If a patient gets a dilution and gets worse or their symptoms flare, you must wait until the flare has gone away before giving another dilution or antigen.

Most flares last a few days to a week. Some sensitive patients may flare for a few weeks. It is important to reiterate with patients that flares are possible with the treatment, but that having a negative reaction is somewhat diagnostic.

It is difficult to stop a flare once it occurs, but alkalinizing the body with baking soda or using steroids seems to help.

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Management of LDI

Parents need to be an active participants in this process and they need to be able to give reliable data on how their child's symptoms change after taking LDI.

I would strongly recommend that they do not do any new therapy while on LDI treatment as it makes it difficult to monitor symptoms, particularly when then worsen.

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Case Study #1

8 year old White male

- Patient presents with new onset of motor and vocal tics, with neck twitching, facial movements and notable "Hmmph" sounds.
- He has a history of allergies, but it is not complaining of any allergy symptoms at the time.
- He is otherwise physically well.
- I ordered labs including CBC, CMP, ASO, DNAse B and TSH.

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Case Study #1

8 year old White male

- Labs show CBC, CMP and TSH normal, but he has elevated ASO (800) and DNAse B titers.
- I suspect he has PANS and gave him a Strep 10C dilution.
- After 2 weeks, mom reports his tics are less noticeable, but have not completely gone away.
- I gave him a Strep 11C as a booster dose to see if it would further help the tics.

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Case Study #1

8 year old White male

- After another 2 weeks, mom reports no change after Strep 11C booster dose.
- In our discussion, she tells me he has a history of Lyme disease when he was 4 years old and was treated with antibiotics at the time.
- I gave him a Lyme 12C next. That night, he had a severe headache, which she managed without anti-inflammatory medication and the following day, his tics had completely subsided.

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Case Study #1

8 year old White male

- After 6 months, I only had to repeat his Lyme 12C once and his motor and vocal tics have virtually subsided.
- I tried giving various Strep dilutions down to 6C with no significant change in his symptoms.
- This was a good reminder that the antigen I thought was the most problematic was of no consequence. Something he had from his past was triggering the immune reaction.

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Case Study #2

10 year old White female

- Was diagnosed with autism at 3 years old and has been through multiple biomedical and behavioral therapies over the years.
- I had been treating her for many allergies for food, molds, pollens and other chemicals with SLIT for 3 years and she had responded well to the therapy.
- However, she would still script, had difficulty maintaining a conversation, had OCD symptoms and lacked awareness.

Case Study #2

10 year old White female

- She has had chronic vaginal itching and white discharge. Examination with her pediatrician found no fungal elements.
- I gave her Candida 12C sublingually.
- The following month, mom reports vaginal itching is less, but she is more calm, more aware and OCD symptoms have drastically reduced.

Case Study #2

10 year old White female

- I gave her a Candida 13C booster and she continued to have improvement in her symptoms.
- After 2 months from first dose, she is starting to script more and OCD is worse. I repeated Candida 12C and within a few days, she was back to herself.
- After another month, we tried Lyme 12C and mom reported that she was much more aware and having typical conversation and asking more 'Wh' questions.

Case Study #2

10 year old White female

- I have since given her several doses of Candida and Lyme 12C and she seems to continue to improve at these doses.
- She has improved academically and has been moved out of special education in many of her classes to neurotypical classroom.

Case Study #3

22 year old male with moderate autism

- Was diagnosed with autism at 2 years old and had severe speech delay, stereotypic behaviors, poor eye contact, toe walking and complete lack of awareness. He also had severe gut issues with diarrhea, gas, bloating and sandy stools.
- He started with behavior therapy, which after 3 years of doing frequent sessions, was minimally beneficial.
- When he was 4 years old, he started biomedical therapy with GFCF diet, vitamin B12 injections, antifungal therapy, HBOT, chelation, nutritional support and many other therapies, which helped mildly.

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Case Study #3

22 year old male with autism

- At 10 years old, he had minimal expressive language and had few 1-2 word sentences and still had stereotypic behaviors. Eye contact had improved.
- Stooling was better.
- Behavior was calm.
- No social interest other than parents.
- Was physically "well", but still quite impaired.

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Case Study #3

22 year old male with autism

- He remained relatively unchanged over the next 10 years working with an environmental medicine physician. He rarely got sick, his stooling was good, slept well and had good energy during the day.
- Had tried multiple other therapies, including vitamin and mineral supplements, immunotherapy injections, social skill classes, but none of them made big improvements.
- As he became older, he became overweight due to inactivity and overeating.

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Case Study #3

22 year old male with autism

- I met him when he was 20 years old after his treating doctor retired.
- I tested him for phenolic and food sensitivities and started him on sublingual immunotherapy and dietary elimination of problematic foods.
- After 6 weeks, he lost a lot of weight and was more physically fit. His awareness started to improve and he was more responsive to his name and commands.

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Case Study #3

22 year old male with autism

- After 3 months, he hit a plateau and progress stopped (although he had not regressed).
- He was tested for infections and his tests were positive for strep, candida and Lyme.
- He started with low dose immunotherapy Lyme 12C, Strep 12C and Candida 12C.
- His mother called after 48 hours and said his expressive language was notably improved.

Case Study #3

22 year old male with autism

- Over the next 6 weeks, his language continued to improve and he was starting to use 3-5 word sentences.
- He received another dose of LDI 7 weeks after the first dose and his expressive language grew and he had more meaningful and abstract thoughts that he had never expressed before.

Case Study #3

22 year old male with autism

- He continued to get LDI over the course of 1 year and we added mycoplasma 10C during this time.
- After 9 months of starting LDI, he called a friend and invited him to the movies.
- He was now having conversations with family and friends and has much greater awareness of his world.
- He continues to do well and now has a part time supervised job.

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Case Study #4

14 year old male with autism and psoriasis

- Patient presented with aggressive behaviors, social impairment, difficulties in school and plaque psoriasis covering his torso, back, arms, legs and scalp.
- Was referred by another parent for identifying and treating food allergies.
- He was found to have several food allergies, so started elimination diet and SLIT.

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Case Study #4

14 year old male with autism and psoriasis

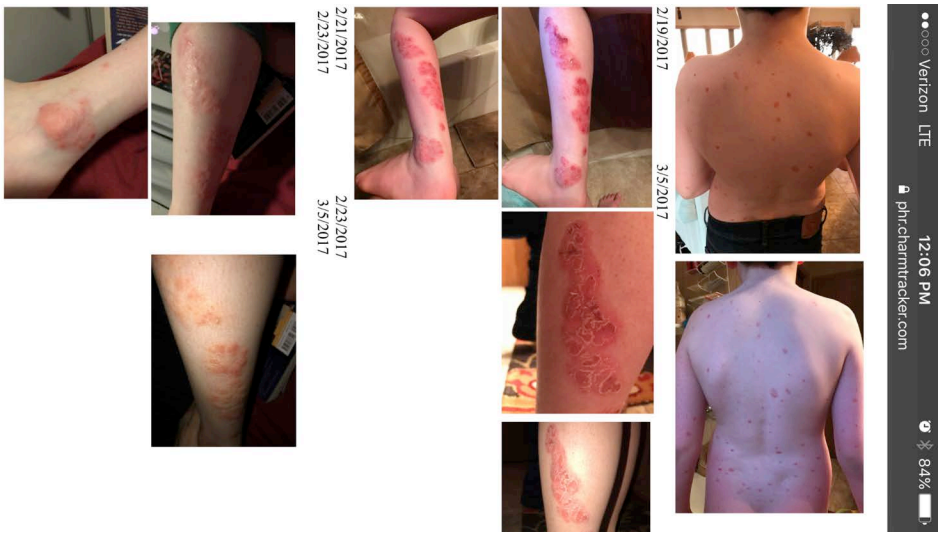
- He initially did well with his foods and his behavior was better and he was more calm and socially engaged. However, his psoriasis did not change.
- I started him with strep 18C 0.04 ml.
- There was not change, so had him take next lower dilution every 10 days and after taking 16C, his psoriasis improved.

Case Study #4

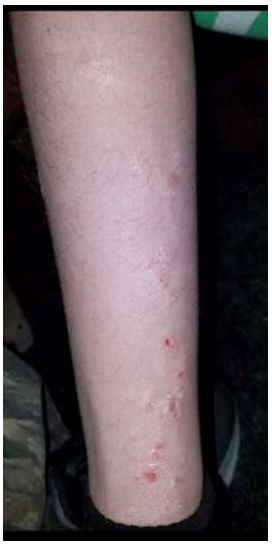
14 year old male with autism and psoriasis

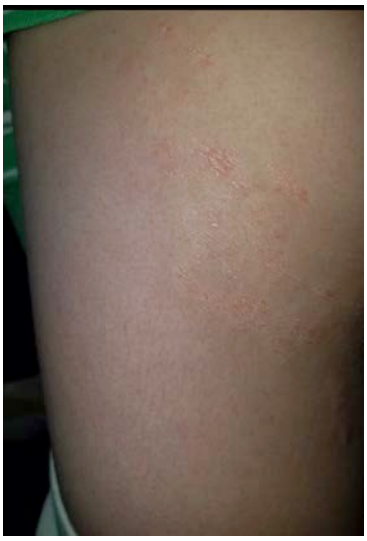
- He received 4 doses over the course of 7 months and his skin improvement plateaued and would occasionally flare.
- I then gave him Staph 16C 0.04 ml and there was significant improvement in his skin.
- He has now received 3 doses of Staph 16C with a few boosters in between and his skin is almost entirely clear.

Case Study #4: Before



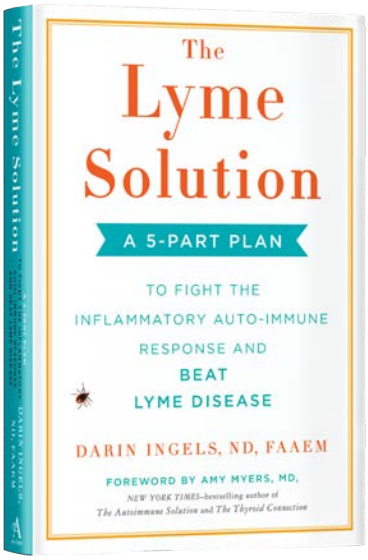
Case Study #4: After





Highlights of LDI

1. Can be effective therapy for undoing autoimmune reaction to various bacteria, viruses, parasites and fungi, but you have to know what you're treating. Lab tests can help figure this out.
2. It is NOT about killing the microbe, but rather modulating the immune system. There are few therapies that do this.
3. What can produce impressive results can also cause problems if the dose is too strong… symptoms can worsen. Start low and increase dose as tolerated.
4. Doses need to spaced appropriately to know how it affects each child. Every 7-8 weeks is the rule for the same antigen.
5. Can use multiple antigens simultaneously, but space apart by at least 1 week.
6. Be cautious about starting other new therapies at same time as LDI. Can be difficult to observe changes.



For More Information

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