

Antimicrobial plasma therapy in three consecutive patients with Lyme Disease

Keywords: Brain derived neurotrophic factor (BDNF), Intravenous, plasma, plasma growth factors, neurogenesis, autologous, antimicrobial, Lyme disease.

Abstract: The use of platelet-rich plasma has been a common alternative treatment within the field of regenerative medicine. With over 30 years of use and thousands of published research articles in various disciplines and treatment applications, the safety and efficacy of local administration (site specific) PRP is well understood. However, the intravenous administration of plasma treatments and the extent of its treatment benefits is not known. Here, we report the case of three consecutive patients who presented with Lyme disease who received dose specific intravenous plasma therapy.

Case Report: This case report highlights the significant clinical improvement and quality of life improvements to three consecutive patients following an intravenous injection of the TruDOSE™¹ plasma treatment. The current report describes the clinical follow up time points for each patient.

Patient Information:

Patient #1 was a 63-year-old retired police officer who had received a Lyme diagnosis six months previous to TruDOSE™ treatment. He suffered from fatigue, lack of sleep, muscle aches and stiff joints.

Patient #2 was a 45-year-old grandmother who has been dealing with chronic Lyme disease for over 10 years. She describes her pain as debilitating. She presented with fatigue, muscle aches, joint pain, brain fog, and an overall general malaise. Additionally, she reports a history of failed attempts at conventional treatments including antibiotics, anti-inflammatory medications, opioids.

Patient #3 – At 16, she reports being bitten by a tick and became fatigued and weak. Began conventional treatments with primary care doctors. Attended college on Division 1 golf scholarship and would frequently come home for various treatment. At 19, she gave up golf scholarship and returned home because she was too weak to carry her golf bag. She suffered from brain fog, chronic migraines, body fatigue, muscle aches, nightmares, lack of sleep waking up 3-5 times per night, and developed a gluten and lactose intolerance.

Therapeutic Intervention: During the same day as examination and following informed consent, each patient received a bacteriocidal dose of the TruDOSE™ intravenous plasma treatment (Bridging Biosciences, LLC). No adverse events observed.

Clinical Progression:

Patient #1 - Immediately had a restful night worth of sleep.

- **Week one:** patient reports he feels stronger and continues to feel stronger, increasingly “more clear” headed than he had been in months.
- **6-month:** patient reports continued improvement - “I feel back to my normal self, both physically and mentally. I feel like all the improvements have sustained
- **Update:** It has now been close to 1 year since Patient #1’s original treatment with no reported regression.

Patient #2 - Immediately had a restful night of sleep.

- End of week one: “My fatigue symptoms have subsided completely. I no longer need a recovery day after watching my grandson. I am able to go to more than one grocery store in a day and able to cook dinner that same day.
- **Month 1-3:** Continued and sustained sleep through the night. Continued energy and increased ability to accomplish more projects around her house on a daily basis.
- **Month 4:** Patient felt fatigue symptoms starting to come back and therefore came to receive a second TruDOSE™ intravenous plasma treatment. Immediately she bounced right back to “an overall state of well-being”, “I feel more rested”, and “I feel even more recovered than after my first treatment.
- **Month 8:** Through months 4 -8, she reports the ability to do certain tasks once again she could not do because of Lyme. At 8 months, she felt an overall sustained improvement from the second treatment and wanted to receive another third.
- **1 year:** Patient continues to report quality of life improvements. At one year, patient reports she feels she is disease free, however received a third treatment. Patient #2 remarked that even though she feels disease free, she will continue treatments every 4 months in the future as a preventative.

Patient #3 - Immediately had a restful night of sleep.

- **30-day report:** “after one month, I have slept through the night every night for the first time in many years.” “My nightmares have changed to dreams, and I have been able to participate in a yoga class. I don’t have any migraines and my joint pain has significantly gone down. I struggled to find motivation to work out and now I am able to go back to back workouts – cardio and running without pain. I have seen such a difference in my body.”
- **60-day report:** The gluten and lactose intolerance had completely resolved. Still no pain in joints.
- **90-day report:** She reports being able to run four miles. Patient reports feeling so well that she decided to walk-on to the college rowing team and received a scholarship to the school she once had a golf scholarship.
- **6-month report:** Continued improvement in some areas and a feeling of plateau in other areas. Due to excessive running, she started developing shin splints. A second intravenous plasma injection was administered and within one week the shin splints disappeared and have not returned. The areas of plateau responded positively.
- **6-12-month report:** Continued improvement all around and areas of plateau. At 1 year follow up, she was already scheduled for a third treatment. At the 1-year treatment, she reports stepping on a nail 2 months prior. During that 2-month time period, she developed an infection at the puncture site and the pain, nor the foot had healed. One week following treatment, the infection and pain both had subsided, and foot healed shortly after.
- **2 year report:** To date, patient has received four treatments in total. Blood analysis confirms no spirochete presence and patient reports a feeling of disease free. Patient remarked she will continue treatments as preventative.

Discussion:

Lyme disease is one of the most difficult to treat because it is difficult to diagnosis. While early-identification can be seen via a skin rash at the site of a tick bite, the clinical symptoms can be mistaken for the flu or other conditions that are commonly misdiagnosed and mistreated. The disease progressively causes musculoskeletal conditions, cardiac conditions, neurological conditions, ocular conditions, and other breakdowns that share overlapping symptoms with other known disease conditions, like fibromyalgia. It is common for a patient to be in this cycle of misdiagnosis and mistreatment until definitive confirmation and diagnosis of Lyme disease is determined with a biopsy and blood tests that confirms spirochete presence, a bacterial parasite. Treatment methods for Lyme disease consists largely of anti-inflammatories, opioids, and antibiotics. Conventional medical understanding teaches the treatment for bacterial infections should be antibiotics. Thus, on-going research and the historical front-line treatment for Lyme disease has been solely antibiotics. However, it is commonly understood that strains of bacteria can evolve to become resistant to even the strongest antibiotics, like MRSA. Considering the spirochete is a bacterium, it stands to reason, ironically, the one treatment we have used historically to treat Lyme disease could be the sole reason it has prevailed. However, plasma therapy presents a novel way of treating Lyme disease for several reasons.

1. Platelets, within plasma, are constantly circulating and detecting for pathogens. Li et al.² described, platelets as autonomous circulating drones armed with an arsenal of weaponry for parasite invasion. Evidence has demonstrated a bactericidal concentration of platelets can destroy even the most antibiotic resistant strains of bacteria.
2. Platelets possess a medicinal warehouse of growth factors, cytokines and proteins that are critical for homeostasis and repair. Circulating platelets can immediately repair breached vasculature and delivering support of proinflammatory / thrombotic factors that can rebalance the metabolic dysfunction through sequential repairs.
3. Platelets provide a plethora of immunomodulatory and neurotrophic growth factors. In other words, these growth factors can rebalance an imbalanced immune system and reinsulate neurons to restore accurate communication of the nervous system – via Brain-derived neurotrophic factor (BDNF).
4. Because plasma and platelets are derived from your blood, the treatment can be considered holistic in nature. Holistic treatments and methods believe in the ancient philosophy that the most effective way of healing sicknesses is by treatments that help the body so it can fix itself. At the right dose and concentration, the TruDOSE™ plasma treatment delivers a systemic and holistic approach relying solely on components of one’s own blood to execute systemic repair and defense.

Here we present 3 consecutive patients who were administered a bactericidal concentration of TruDOSE™ plasma. These early results are promising because the clinical results were reported to be maintained and sustained for each of the three patients. Based on the three patients, one can assume treatment frequency and time to healing, whether perceived or confirmed, will depend on the patient’s metabolic state and length of time with disease. Surprisingly, the two patients with the long battle of the disease chose to continue treatments as a preventative. In conclusion, these promising and early results present an alternative holistic treatment for Lyme disease.

¹ Dosing inaccuracy has historically limited the scientific understanding and potential treatment discovery from autologous cell therapies, like plasma treatments. The TruDOSE™ Technology (Bridging Biosciences, LLC) solved this dosing inaccuracy problem whereby learning and helping providers produce dose specific treatments to individual patients. Unexpectedly, the implementation of the TruDOSE™ Technology led to the discovery of an intravenous treatment protocol (TruDOSE™). Since 2018, close to five-thousand TruDOSE™ treatments have been given and having symptom effects not described within the published literature.

² Li et al. 2017. Platelets as autonomous drones for hemostatic and immune surveillance.