

14. GENERAL CONSIDERATIONS FOR TREATMENT AND SAMPLE PROTOCOLS

Intravenous Versus Oral Administration of Antibiotics

Intravenous (IV) administration of antibiotics is another route that can be used in Lyme treatment. Access to IV antibiotics for Lyme can be limited for many, but hopefully, with increased education of the medical community, this situation will change and IV antibiotics will be accessible to a larger cohort.

IV therapy may be indicated in the following conditions:

- Illness duration longer than one year.
- Major neurological involvement.
- Lack of response to oral and/ or intramuscular medications.
- Gastrointestinal function compromise to the point where oral medications are either not getting properly absorbed or are causing excessive GI side effects.

Some of the benefits of IV therapy include:

- Medications can be given in higher doses than oral to achieve higher blood levels.
- Medications given via IV bypass the gastrointestinal tract therefore have fewer GI side effects.
- Most of the medications given orally can be given via IV including doxycycline, azithromycin and metronidazole.

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IV antibiotics are not necessarily the easy road or the magic bullet, however. Here are some of the potential issues:

- Having a PICC line or a central line can be very disruptive to activities of daily living. It requires daily maintenance, and risks of infection are always present.
- IV therapy may continue over several months, not just a few weeks. The minimum duration recommended for chronic Lyme is 14 weeks, however if the patient is showing improvement but is still symptomatic, even longer times may be required.
- IV ceftriaxone does not cover all phases of *Borrelia* nor does it address co-infections, so oral/ IM medications must still be administered for those. Very few patients do all of their three or four mediations via IV.
- IV ceftriaxone can cause biliary sludging and put the individual at risk of having to have their gall bladder surgically removed. (Interestingly, Dr. Burrascano believes that the gall bladder might be a reservoir of infection and has observed that his patients who do not have a gall bladder fare slightly better overall). Any surgery can be stressful for a Lyme patient, as it involves chemicals, anesthesia, heightened risk of infection, adrenal and immune stress, and should be avoided where possible.
- IV ceftriaxone still clears through the liver and may still cause imbalances in the intestinal flora. Preventive measures to keep gut flora balanced must be undertaken.

If IV antibiotics are not available or not indicated, a good alternative is intramuscular administration of Bicillin LA. This is a very effective medication, has good central nervous system penetration, and relieves some of the burden on the gastrointestinal system. While still only addressing the spirochete form of *Borrelia*, and is therefore not a stand-alone therapy, Bicillin LA is one of the most effective antibiotics available for use in patients who do not have penicillin allergies.