



Terebinthina Laricina in Borreliosis: Comparison with Antibiotic Therapies

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Abstract

Lyme disease antibiotic therapy regimens are recommended by the Centres for Disease Control and Prevention, the Infectious Disease Society of America, and the National Institutes of Health. Alternative approaches consist of prolonged antibiotic treatment however Lyme disease often results in persistent *Borrelia burgdorferi* infection. Continuous antibiotic therapy results in low lymphocyte levels thus cannot be applied for long term without harm.

Objectives: Alternative approaches for treatment of Lyme borreliosis are required, which successfully reduce or erase bacteria without affecting the human cells. Terebinthina laricina, an alcoholic extract of *Larix decidua* resin was selected for a pilot study to treat a patient with neuroborreliosis.

Results: After six weeks of treatment, the patient shows a strong Herxheimer reaction. No disease progression occurs, within weeks she recovers from most of the Lyme disease specific symptoms. Elispot results indicate no bacterial activity.

Conclusion: This new principle of Lyme disease treatment shows high potential to provide a smooth medical treatment for neuroborreliosis.

Keywords: Terebinthina laricina; Larix resin; Borreliosis

Introduction

The incidence of Lyme borreliosis (Lyme disease) is increasing in many countries. It is caused by spirochaetes of the *Borrelia burgdorferi* species, which are transmitted by ticks. *Borrelia* appear as spirilla, they move throughout the host and can reach every tissue, causing severe manifestations that can involve a patient's skin, nervous system, joints, and heart.

Inappropriate conditions, like penicillin treatment, cause the *Borrelia* to transform to cysts. Cysts and spirilla show different antibiotic sensitivity [1], thus treatment with only one antibiotic substance might prevent a successful treatment. Cysts cannot be identified by the immune system, thus *Borrelia* are persisting in the patients body.

Prevention is mainly accomplished by protecting against tick bites. There is no vaccine available for human beings [2]. As a vaccine, Outer Surface Protein A had been tested. This causes severe autoimmune reactions, thus further experiments were ceased.

The most common clinical manifestation is erythema migrans, which eventually resolves, even without antibiotic treatment. Antibiotic treatment at later times often is not permanently successful. Persisting *Borrelia* might lead to manifestations even years later. The clinical picture hereby is extremely variable, diagnosis upon symptoms nearly impossible. Many physicians misinterpret symptoms, Lyme disease hides.

Often glia cells are involved in inflammation and manifestation of the disease [3,4]. This leads to affections of the nerve tract, signal transduction is deranged, and feed back systems are interrupted. Wherever this occurs, various symptoms appear. Cell death of glia and neural cells lead to diverse diseases [5] - paralysis, pain, arthritis and damage of inner organs can appear. Damage of the nerve cords cause various symptoms including heart rhythm disorders [6,7]. Frequently dorsalgia occurs, originating from mechanical instability due to paralysis of muscles tracts. The maximum of the pain is in the early morning, analgetic rarely helps. Pain attacks are accompanied by night sweat.

Borrelia destroy the glia cells by hydrogenation of fatty acids in the cellular membrane, meaning they oxygenate the essential fatty acids [8].

This leads to loss of the fluidity of the membranes, they become quasi-crystalline. This leads to different conformation of membrane proteins, these other conformations were recognized from the immune system as foreign, autoimmunity is the result. In this constellation, *Borrelia* have an advantage, they easier digest the aggrieved tissue.

Laboratory evidence of infection, mainly serology, is essential for diagnosis, except in the case of typical erythema migrans. Titrated are anti-*Borrelia* IgM and anti-*Borrelia* IgG. Immunoglobulin M (IgM) antibodies occur two weeks after infection and are replaced by immunoglobulin G (IgG) antibodies about four weeks after infection. Usually the fresh infection, i.e. IgM antibodies are not discovered, only the later appearing IgG antibodies. Unfortunately the existing test systems are not very sensitive and specific, meaning that about 40% of *Borrelia* infections remain undetected, and about 20% are false positives [9].

15% of *Borrelia* infections result in neuroborreliosis. This is diagnosed by occurrence of antibodies in the cerebrospinal fluid of the patient. Bacteria in the brain can lead to severe inflammations, to deficits any kind. Autoimmune disease might be induced, the emergence of Alzheimer plaques due to *Borrelia* infection is discussed [10].

The risk of severe long term symptoms enforces the need for a successful treatment, successful reduction of *Borrelia* is necessary. An evident borreliosis might be cured with high dose, combined and long term antibiotics [11]. Always changing recommendations for dosage and drugs are published by the public authorities. Frequently, erase of *Borrelia* is not possible and short time after the antibiotics, progression starts, symptoms reappear. Long term

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antibiosis additionally reduces leucocyte levels, thus, the activity of the immune system. A weak immune system cannot resist the bacteria. Alternative therapies are required to avoid long term consequences. Since 200 years, colloidal silver is used against pathogenic agents. Whereas colloidal silver has antibiotic effects, colloidal gold is ineffective [12]. Thus, the effect is not intoxication due to heavy metal, but a specific interaction. It is discussed, that colloidal silver could interfere at the respiratory chain in the mitochondria of the cells. Colloidal silver – like Borrelia – interpenetrates all organs and tissues, can permeate the cellular membranes, and is excreted by the kidneys. Colloidal silver therapy can stabilize Lyme disease [13].

Larix decidua, the European larch is a deciduous conifer, frequent in the Alps. There the resin of this tree had been a traditional remedy, forgotten in our days. Drug addiction treatment was replaced by academic medical methods, apparently faster in effect [14]. Extract of the resin of Larix decidua – Terebinthina laricina – found entrance to the classic homeopathic treatment. It is used against rheumatic disorders, burning and dragging pain, kidney problems with turbid urine or proteinurie.

Since 1978 commission E is established from the European community, a scientific board consisting of pharmacologists, biologists and physicians. It evaluates medical plants and their ingredients, effects and side effects. Terebinthina laricina obtained on December 5, 1984 a positive monographia, meaning therapeutic effects can be ascertained.

Old documents describe medical applications by earache, rheumatism, neuralgia, toothache or infections of the skin. Often salve is submitted, effecting activation of the immune system, comparable with the effect of ichthysalve. Internal application is described for gonorrhoe, with possible side effects like kidney inflammation, diarrhoea and occurrence of allergies.

Borreliosis appears with symptoms identical with the leading symptoms for homeopathic use. Here successful treatment of a neuroborreliosis with Terebinthina laricina is compared to antibiotic treatments.

Patient

The female patient was born in 1956; history reveals familiar autoimmunity and neurological symptoms. Allergic constitution is known, an allergy against penicillin occurred as rash first in 1979, histamine reaction against all known tree pollen are diagnosed.

Measles and scarlet fever occurred during childhood. Varizella zoster infection was diagnosed at the age of 26, succeeded by neuralgia in Thoracic Spine Segments (TSS) 10/11 emanating to the ventrum due to persisting virus in nerve cords. At the beginning of 2009 an anti-Varizella IgG antibody titre of 1215 mIU/ml is measured, reflecting high virus activity. In summer 2008 several ticks affected the patient, one in segment of TSS10/11 on the ventral side. No erythematic migrants occurred. In December 2008 dorsalgia in TSS10/11 started, periods with diarrhoea occurred. The pain always increased, paralysis of the abdomen followed progressively. After a number of tries to find the cause of the pain, a neuroborreliosis was diagnosed in June 2009.

Antibiotic and Colloidal Silver Treatment

All attempts were in vain to erase the bacteria by antibiotic or colloidal silver treatment for two years. Within months of treatment, beneath the dorsalgia and frequent diarrhoea, nervous system (CNS) symptoms occurred: decreasing concentration and memory weakness.

The brain frequently showed cognitive disruption, meaning all thoughts disappeared at an instant and only tediously the thread could be refound. Panickiness with flickering anxiety arose. Heart problems, tachycardia, rhythm irregularities occurred, and a septum infarction were diagnosed. Antibiotic treatments always induced Herxheimer reactions, diarrhoea was frequent. Altogether 20 gram ceftriaxone, 14,3 gram doxycyclin and 17,5 gram azithromycin were applied during antibiotic treatment until end of 2010, maximal daily doses were 2 gram ceftriaxone or 200 mg doxycyclin or 500 mg azithromycin. Beginning of 2011 altogether 60 mg colloidal silver was used, daily 5 ml of a 25 ppm solution was applied. After the end of the treatments, progression of the symptoms restarted immediately (Table 1).

Problems with the immune system arose. Allergic reactions to antibiotics are common. Initially light asthma beginning in winter 2009 occurred. Ceftriaxone infusions lead to an allergic reaction at the tenth therapy day appearing with rash. Ceftriaxone is a cephalosporin, and cross reaction with anti-penicillin antibodies are known. Asthma attacks became more frequent during antibiosis, use of a cortisol spray lead to an outburst of borreliosis. After the last azithromycin treatment end of 2010 a Lyell syndrome occurred, followed by an allergic shock due to incompatibility to parsley root. The dysfunction of the immune system was reflected by leukocyte deprivation until end of 2010 (Table 1). Electro acupuncture of Dü17, the point of the adrenal cortex, successfully eliminated all allergic symptoms in June 2011.

Drug	-	Antibiosis	Koll. Silver	T. laricina	-
Time/Period	5/09	6/09-12/10	1/11-7/11	8/11-9/11	12/11
Anti-Borrelia IgG antibodies [U/ml] [Test from Euroimmun]	178	178-68	68-34	34-?	?
Elispot [number]	18	18-4	4-3	3-0	0
Leucocytes [tsd/µl]	6.2	6.2-3.8	3.8-?	?-6.3	6.3
Side effects (during therapy)					
Primary Response	n	-	-	+++	n
Herxheimer reaction	-	+	+	-	-
Diarrhoe	+	++	+	+	-
Symptoms (end of period)					
Herxheimer reaction	-	+	+	+++	-
Dorsalgia	++++	++	+	+	+
Proteinurie	-	+	+	+/-	+/-
Ventral Paralysis	++	+	+/-	-	-
CNS symptoms					
Anxiety ¹	-	++	+	-	-
Cognitive Disruption ¹	-	++	+	-	-
Memory Loss ¹	-	+	+	-	-
Concentration Loss ²	+	++	+/-	-	-
Cognitive failure ³	-	++	++	-	-
Heart symptoms					
Septal infarction	?	?	+	+	+
Extrasystole	-	+	+	+	-
Tachycardie	-	++	+	-	-
Allergies	+/-	++	++	-	-
Progression of Disease	++++	++	++	-	-

¹Explanation in main text.

²Memory was tested by positioning information in the evening and prompts it the next morning.

³Concentration was tested by resolving three simple sudokus within 15 minutes without mistake.

⁴Upon heat for example in a sauna, the brain begins to flicker after some minutes.

Table 1: Terebinthina laricina Therapy.

Terebinthina Laricina

End of July 2011 treatment with Terebinthina laricina D1 is started. In a few occasions, some drops of colloidal silver were applied in addition. No other therapy occurred during this period. With the uptake of 5 drops Terebinthina laricina initially a strong primary response arises: the segment of TSS11/12 induces immediate and strong pain, the patient has to lie on the floor for some minutes until she is able to stand up again. With a daily dose of 2 x 10 drops the treatment is continued for exactly 6 weeks.

Altogether 7 gram of the Larix decidua resin, i.e. 80 ml of Terebinthina laricina D1 is applied.

After a week, diarrhoea appears for some days, and disappears without any measure. The dorsalgia sometimes become stronger, sometimes weaker. The nerve cords of TSS11/12 start to prickle, additional paralysis does not appear. Four weeks after starting the therapy, the patient starts to dislike several nutritional.

Altogether the activity of the Borellia fluctuates. Sometimes a decrease of symptoms is realized, followed by an increase. Nerve cords react with pricking, CNS symptoms vary. The patient still senses activity of Borrelia during the whole period of treatment.

The last day of the therapy, the bladder burns with inflammation, urine remains colourless. The next day during the evening shivering appears for several hours. This is repeated the next two days. The patient cannot sleep these three nights and hallucinates.

The second day after the end of therapy the urine becomes beige, after seven days this recovers to the normal. The patient cannot eat for four days and loses 4 kg of weight. Some nutritional, and all drinks with carbon dioxide have poor taste, this strong symptom disappears slowly after ten days.

Ten days after the end of therapy, the patient does not sense any bacterial activity any more.

History end of October showed, that most of the CNS symptoms disappear, however some memory problems remain. Most of the heart symptoms regenerated, i.e. tachycardia disappears - the septum infarction remains. All paralysis disappears, whereas some dorsalgia remains (Table 1).

Comparison of Terebinthina Laricina with Antibiosis and Colloidal Silver Therapy

Table 1 lists symptoms and results of all three treatments of the patient.

Antibiotic treatment during one and a half years can reduce anti-Borrelia antibody titre in serum and Elispot numbers, but leukocyte levels decrease below the minimum, and emerging allergic reactions show severe damage of the immune system. Immediately after the end of therapy, symptoms are progressing. Colloidal silver treatment for half a year stabilizes the disease; it reduces the antibody level and Elispot numbers, indicating lower bacterial activity. Progression of the disease starts immediately after the end of therapy. Terebinthina laricina treatment for six weeks stabilizes the patient, Elispot results become negative, and Leukocyte levels normalize. Most neuroborreliosis symptoms disappear, the immune system recovers. No progression restarts after the end of therapy.

Discussion

Antibiotics are designed to inhibit specific processes of prokaryotic

cells, ideally without interfering with eukaryotic biochemical processes. Human cells harbor mitochondria. Due to the endosymbiosis theory they might originate from prokaryotic cells. Today still they show many similarities to bacteria. Thus, antibiotics might interfere with biochemical processes of these organelles. The effect of colloidal silver might be similar.

Terebinthina laricina seems to have a different mode of action: It causes a severe and immediate primary reaction. This primary reaction occurs once and does not persist. As Terebinthina laricina D1 is a homeopathic drug, a primary exacerbation is expected. During the therapy, no Herxheimer reaction appears, only at the very end strong reactions occur. The Herxheimer reaction is a response of the body to bacterial toxins of dying bacteria. Thus, Terebinthina laricina leads to bacterial lysis at the very end of the therapy, whereas antibiotics and colloidal silver therapy decimate bacteria during the whole period of therapy. Consequently Terebinthina builds up a level in the body to reduce all bacteria at once. A day before this happens the kidney is less permeable leading to colourless urine. Is the principle of action a block of the ways of the bacteria to nutrition?

Antibiotics and colloidal silver cannot eliminate living bacteria from the body in this case; progression of the disease immediately starts after ceasing uptake of the drugs. In addition, allergic reactions amplify. Terebinthina laricina therapy leads to a successful remission: Elispot results become negative, disease progression does not follow. Thus, this alternative treatment can be considered in cases, where antibiotics lead to allergic reactions.

Antibiotic features of essential plant oils are known [15,16]. Terebinthina laricina and other remedies were widely used in former times. Today, their potential in medical treatments is obscure; most of their ingredients are still unknown. It is a challenge for the scientific community to focus on these treasures.

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