

## **The LDA and ILADS conferences Philadelphia 2006 - Summary**

### Declaration and author information

The author, Dr. David Owen, is in medical practice in South Wales, UK. The views in this article are solely those of the author. The author's intention is to provide key information from the conference in the light of known facts about Lyme disease. The author has no conflict of interest to declare.

### The LDA conference

Pat Smith, president of the LDA, opened the conference with a talk about the activities of the LDA during 2005. As usual the organisation has been highly active throughout the States. In addition Pat Smith has noted more global interest in Lyme. For example she stated the WHO in its sixth report from the Millennium Ecosystem Assessment referred to an increase in "insect borne diseases such as Lyme and malaria".

Comment: Hopefully someone has now explained to the WHO the difference between a tick and an insect.

David Ecker PhD gave the first keynote talk to the conference. At Ibis Biosciences he has been leading a large team who have developed a new technique referred to as Universal Biosensor Detection. Developed in response to a possible bioterrorism threat the DNA based technology is able to rapidly screen for numerous micro-organisms simultaneously. It has already been used for actual disease outbreaks such as one in US Marine recruits at MCRD in 2002. One interesting finding from this study was that the outbreak appeared to be due to not one but three different bacteria.

Comment: Outbreaks of infectious disease are normally assumed to be due to one particular strain of an organism which may have mutated into a virulent form. This technology may change this view. It is relevant to Lyme disease because it is increasingly being recognised that Lyme disease patients carry other tick borne pathogens which are contributing to the clinical picture. If the technology could be used to rapidly detect co-infections in Lyme there is no doubt this would be of great value to physicians.

PCR testing for Borreliosis holds the most promise for the laboratory diagnosis of Lyme disease but the test lacks clinical sensitivity particularly if blood is used as the testing medium. Roger Lasken PhD described a new technique of Multiple Displacement Amplification whereby sample DNA is pre-amplified en masse to increase DNA copies to be PCR tested. There appears to be no loss of fidelity.

Comment: If this technology can truly increase the 'pick up rate' for Borrelia PCR testing then commercial interests and/or politics must not be allowed to interfere. Patients need this technology now if it works.

Keith Clay PhD has been studying microbial diversity in ticks. Increasing numbers of tick borne pathogens are being identified and Dr. Clay has used molecular biological techniques to determine the full bacterial complements being harboured within ticks. It has been found that the range of organisms is large and goes well beyond known pathogens.

Comment: Although most of the microbes appear to be symbionts or commensals within the tick it is possible some may prove to be human pathogens. Clearly this will be an important area for further research.

Recognising that co-morbidity can and does occur Lyme physicians have been treating some ALS patients with IV Ceftriaxone for years but it seems that Jeffrey D Rothstein MD will get credit for discovering that this agent can help stop progression of this terrible condition. Using a mouse model of ALS numerous known therapeutic agents were tested and it was shown that beta lactam antibiotics had the greatest effect. Dr. Rothstein believes the effect is due to the known ability of this group of agents to stimulate a particular Glutamate transporter protein, GLT 1, so reducing Glutamate neurotoxicity in the CNS.

Comment: It is many years since Minocin was shown to be of value in Rheumatoid Arthritis patients. It was, and still is, held that this effect is due to the anti-inflammatory effect of the compound not an anti-bacterial effect. It is all starting to look rather suspicious.

Elisabeth Aberer MD talked about Lyme Borreliosis in Europe. Her background in dermatology appears to help her to diagnose EM and ACA and she has been studying the variable morphological forms of Borrelia in vitro in an attempt to understand more about persistent infection.

Manuel Moro DVM has been studying the effects of co-infection of Babesia microti and Borrelia infection in the murine host. Increased levels of carditis and arthritis were found with co-infected hosts correlating with an increase in TNF alpha and a decrease in IL4.

Daniel Cameron MD informed us that the double blind placebo controlled study he reported in 2005 has not yet been published but Dr. Cameron has a different paper in press which he presented. The case controlled study suggests that delayed treatment of Lyme disease is a risk factor for treatment failure.

Comment: Most doctors agree that early treatment of Lyme disease may prevent establishment of a chronic form of the disease but evidence is sparse and this study is most welcome.

Diego Cadavid MD has been studying the effects of Borrelia infection in mice and monkeys in the laboratory. A striking finding was that increased tissue destruction and slower clearance of organisms were found in hosts immunocompromised with the steroid dexamethasone.

Comment: These are animal experiments but it is only through doing these studies that we will learn more about the complex interactions which occur between pathogens and host.

The field of Lyme disease is productive territory for the development of hypotheses as Alan Macdonald MD knows. His belief that Alzheimer's disease is linked to chronic Borrelia infection has considerable evidence to support it. Dr. Macdonald revisited some of the evidence in his talk and pointed out that there is far more evidence supporting the infection hypothesis in Alzheimer's than there was linking the GPI of syphilis with its accepted spirochete cause.

Comment: It may well be that anti-bacterial agents will prove to be the best agents to arrest early Alzheimer's but it seems that it will first be necessary to generate a non anti-bacterial explanation for such an effect.

Øystein Brorson MD first published works on the cystic forms of Borrelia burgdorferi in 1995 and he presented stunning electron micrographs of Borrelia cyst forms to the conference. He has found that certain agents can lyse the cyst forms including Metronidazole and Hydroxychloroquine which are used by some Lyme physicians. These are in vitro studies however and they may not reflect events in the host. In fact Dr. Brorson reported that the best anti-cyst agent he has found was crushed grapefruit seed. Was he really suggesting that Lyme patients eat their pips? He did not say.

Ernest Visconti MD reminded us about diagnoses that must not be missed during the investigation of Lyme disease. There is no doubt that examination and investigation of Lyme patients must be thorough as they often have multiple pathology.

Comment: Most Lyme physicians report that the patients they see have consulted numerous different specialists and undergone numerous tests beforehand but nonetheless vigilance is essential to avoid missing co-existing pathology.

Brian A Fallon MD presented at both the LDA and ILADS conferences. In his LDA talk we were told about the uses and abuses of neuro-imaging in Lyme disease. Functional imaging may show hypoperfusion in Lyme disease and improvement with appropriate therapy is known to occur. We were reminded however that the tests cannot be used for diagnostic purposes and their routine use should probably be avoided on grounds of cost. In the ILADS conference Dr. Fallon presented the case of a 13 year old girl with an atypical psychotic illness. Lyme appeared to be a possible diagnosis owing to a history of EM. She responded poorly to antipsychotic medication but responded well to IV Ceftriaxone medication. Dr. Fallon pointed out that psychiatric symptoms and IgM Lyme positivity alone in an endemic area should

not equate to Lyme - other clinical features must be sought. In addition to this Dr. Fallon gave the audience useful advice about the pharmacological management of psychiatric symptoms which often need to be addressed in the Lyme patient.

### The ILADS conference

Raphael Stricker MD, president of ILADS, opened the 2006 ILADS conference with a lesson in comparative sociology. He has concluded that there is a similar state of denial about the significance or even existence of chronic Lyme disease by some people comparable to AIDS denial in the 1980s when some authorities believed that the AIDS virus did not cause AIDS. We were told that it would be inconceivable to deny AIDS patients the treatment they receive but this is what is now happening with chronic Lyme disease. The prevalence of the two conditions may be similar worldwide according to Dr. Stricker.

Comment: Globally we seem to have a situation where AIDS patients are allowed treatment which is frequently not available to them and Lyme patients are frequently disallowed treatment which is available to them.

Low CD57 NK cell counts are known to be associated with active Lyme disease but the precise role of this test has yet to be determined. Ginger R Savely RN reported the results of a small study which she has carried out to examine the normal variability of CD57 NK cell counts. High variability within the same individual was found and it was suggested that changes in the CD57NK counts unless large should be viewed with caution.

Comment: The study involved only 20 patients. Much bigger studies need to be carried out to address issues such as these.

It is known that the length of time of tick attachment is an important risk factor for the development of Lyme disease and attachment times of greater than 36 hours are particularly risky. Stephen K Wikel MD provided a fascinating insight into the complex biological processes which occur as a tick feeds on its host. We were informed that an Ixodes tick has around 500 different proteins in its saliva. While the function of a quarter of these is completely unknown others have well defined functions such as induction of local anaesthesia, anti-haemostasis, immunomodulation and extra-cellular matrix remodelling. Distant as well as local host effects occur and many processes appear to assist pathogen transfer and replication as well as assisting the tick with its blood meal. We were told that laboratory transfer of pathogens through inoculation was in many ways incomparable to natural transfer.

Comment: Dr. Wikel informed us that ticks have a genome size around two thirds the size of a human genome. There is clearly much more to be learned about what makes a tick tick !

Daniel Cameron MD following on from his LDA talk compared the new IDSA guidelines for the treatment of Lyme disease with the ILADS guidelines. We were told that ILADS had requested a review of the IDSA guidelines but this had been rejected. Dr. Cameron explained how the Klempner trial results had been misinterpreted by the IDSA. He expressed hope that the balance will be redressed when the Fallon and Cameron trials become published.

Joseph J Burrascano Jr. MD gave two talks. In the first he gave an update on the computerised data project he has been working on with Dr. Meer Scherer MD. Computerised forms have been prepared and data will soon be available for complex interrogation. The project holds the promise of delivering interesting new findings. In his second talk Dr Burrascano gave a distillation of his approach to the clinical management of Lyme disease based on his detailed observations over many years.

Robert C Bransfield MD spelled out the many issues that arise when dealing with health insurance claims. Most patients rely on their health insurance for their necessary treatments but when these are expensive, as in the case of Lyme disease, insurance companies use a variety of techniques to escape fund provision. Pressure is placed on doctors as well as patients as the conflict between best practice and funding unfolds. Dr. Bransfield gave advice on how to enhance success when dealing with insurance companies such as ensuring that advocates are used.

Leila H Zackrisson MD gave a presentation on transfusion Babesiosis. While the absolute risk is low screening of donors is unreliable and cases continue to occur and may increase in the future. The incubation period of Babesia may be up to three months so these cases can easily be missed. Current treatment recommendations were discussed.

Dr. K Bock gave a talk on the importance of an integrative approach to Lyme disease. He pointed out that there may be many non infective drivers of inflammation in the Lyme patient. These include nutritional and endocrine disturbances as well as various toxins and 'stress'. The importance of using DMSA provoked urinary tests for heavy metals in some cases was emphasised and the problem of dysbiosis was discussed.

Dr. Martz MD was a practising Haematologist until he developed classic signs of motor neurone disease over two years ago. He described his own case which has been published in Acta Neurologica. He had some symptoms which were not typical of MND but suggestive of Lyme disease and this led to him receiving IV Ceftriaxone and Babesia treatment despite negative initial tests for Lyme. After more than two years of IV treatment he has shown a remarkable improvement. He has been able to start practice in medicine again, now in the area of Lyme disease.

Comment: This is a remarkable story and I am sure everyone wishes Dr. Martz success in his endeavours and continuing good health.

Nick Harris PhD is head of the IgeneX Lyme reference laboratory in California. He spoke in great detail about Borrelia testing as carried out at IgeneX and how systems of regulation and validation operate. IgeneX interprets Western Blots according to criteria which differ to those advocated by the CDC. The interpretation is estimated to result in 5% loss of specificity (to around 95%) but 15% gain in sensitivity. Surely this must be a price worth paying.

Richard I Horowitz MD has vast experience in treating chronic Lyme disease. He outlined his approach to diagnosis and treatment emphasising the need to consider co-infections. Other factors which may cause the Lyme patient to respond poorly were also considered. Dr. Horowitz made it clear that Lyme disease patients are a diverse group and we should not use a 'one size fits all approach' to their management.

Andrea Gaito MD specialises in Rheumatology and Lyme. We were told that 60% of Lyme patients have arthritis before treatment. The pathophysiology of Lyme arthritis was discussed and useful clinical guidance was given concerning when to suspect auto-immune disease which may also be present in the Lyme patient.

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