NORVECT

International Conference on Vector-borne Diseases

May 26th – 27th, 2014, The Grand Hotel, Oslo

Share Your Knowledge - Develop New Insights - Show Your Compassion

PROGRAM

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Content

Share Your Knowledge

"Often, we are too slow to recognize how much and in what ways
we can ASSIST each other through SHARING EXPERTISE and knowledge."

– Owen Arthur

Share Your Knowledge - Develop New Insights - Show Your Compassion

Welcome

Welcome to the NorVect international conference on vector-borne diseases here in Oslo, Norway! In the course of the next two days, we have the pleasure of presenting some of the world's leading scientists and medical doctors on Lyme Borreliosis and other associated vector-borne diseases. They will share the latest research, as well as their own experiences within this area.

Vector-borne diseases are spreading across the globe. The Nordic countries are no exception. In Scandinavia, an increasing number of people are falling ill to diseases transmitted by vectors, such as ticks, however find themselves not getting the proper diagnosis, nor receiving effective treatment in the public health care system.

It has become evident that we need much more research regarding vector-borne diseases. With this conference, NorVect wants to contribute to increasing the knowledge on these diseases. We consider dialogue and knowledge-sharing across medical communities and national borders as key to creating more understanding and awareness on how these illnesses strike. We want the medical communities to show compassion with patients that are not being seen, heard or respected. With this in mind, we wish to inspire the medical communities to be curious, open-minded and innovative - which is vital in driving new science.

Diagnostics and treatment of Lyme Borrelisosis will naturally be key topics at this conference. Emphasis will also be placed on co-infections, such as Bartonellosis, Babesiosis, Anaplasmosis and Ehrlichiosis. When a patient has multiple ongoing infections, diagnosis and treatment become immensely challenging. Also topics such as, the link between Lyme and other serious neurodegenerative illnesses (MS,Alzheimer etc.) will be presented.

We are exited to start this two day journey of knowledge sharing with you.
Be curious, be open, share your thoughts – be part of creating future insights on vector-borne diseases.

Siw Hansson
Co-Founder

Sissel Davidsson
Co-Founder

Program

Monday May 26th 2014

8.00 am – 9.00 am
Registration

9.00 am – 9.20 am
Welcome by NorVect
Trine Skei Grande
(Liberal Party, Venstre) gives opening speech

9.20 am – 10.20 am
Joseph J. Burrascano Jr. MD
Lyme Borreliosis – History, Clinical Presentations, Testing and Diagnosis (incl. 5-10 minutes Q&A)

10.20 am – 11.15 am
Jyotsna Shah, Ph.D, CCLD, MBA
What Have We Learnt About Diagnosis of Lyme and Other Tick-borne Diseases in The Last 20 Years? (incl. 5-10 minutes Q&A)

11.15 am – 11.35 am
Break

11.35 am – 12.45 pm
Richard I. Horowitz, MD
Tick-borne Co-infections: Presentation, Diagnosis and Treatment. (incl. 5-10 minutes Q&A)

12.45 pm– 1.45 pm
Lunch – networking, knowledge sharing

1.45 pm – 2.45 pm
Christian Perrone, PhD, MD
The gap between current diagnostic tests for Lyme disease and associated diseases and the diversity of pathogens isolated in the world. (incl. 5- 10 minutes Q&A)

2.45 pm – 3.15 pm
Carl Morten Motzfeldt Laane, PhD
Easy Detection of Bacteria and Parasites in Infected Human Blood by Microscopy. Some Simple, Low-cost Methods. (incl. 5 minutes Q&A)

3.15 pm – 3.40 pm
Bela Bózsik, MD
DualDur®reagent & method in diagnosis & pathogenesis for TBD – 30 years practice (incl. 5 minutes Q&A)

3.40 pm – 4.00 pm
Break

4.00 pm – 4.40 pm
Alan MacDonald, MD
Borrelia -diverse Morphologies in culture and in Human Infections (incl 10 minutes Q&A)

4.40 pm – 5.00 pm
Armin Schwarzbach, Ph.D, MD
Borrelia-Elispot: A Game-Changer in diagnostics?

5.00 pm– 5.45 pm
Dialogue/ Panel discussions

Tuesday May 27th 2014

07.30 am – 08.30 am
Registration

08.30 am – 09.30 am
Joseph J. Burrascano Jr. MD
Lyme Borreliosis: Treatment and Case Histories (incl.10 minutes Q&A)

09.30 am – 10.30 am
Dr. Edward B. Breitschwerdt, DVM
Bartonellosis: A One Health Approach to An Emerging Infectious Disease (incl. 10 minutes Q&A)

10.30 am– 10.50 am
Break

10.50 am – 12.30 pm
Richard I. Horowitz, MD
Why Can´t I Get Better? Using the Lyme-MSIDS Map in Chronic Illness. (incl. 10-15 minutes Q&A)

12.30 pm – 1.30 pm
Lunch – networking, knowledge sharing

1.30 pm – 2.20 pm
Eva Sapi, Ph.D
Biofilms and antibiotic resistance of Borrelia burgdorferi (incl. 5-10 minutes Q&A)

2.20 pm – 2.40 pm
Randi Eikeland, Ph.D, MD
European Neuroborreliosis Long-term Follow-up (incl. 5 minutes Q&A)

2.40 pm – 3.05 pm
Åshild Andreassen, Ph.D
ScandTick – Regional cooperation against tick-borne diseases. (incl. 5 minutes Q&A)

3.05 pm – 3.25 pm
Break

3.25 pm – 4.10 pm
Alan MacDonald, MD
Human Borrelia Deaths, Autospy studies, and Chronic Morbidities (incl. 10 minutes Q&A)

4.10 pm – 5.00 pm
Judith Miklossy, Ph.D, MD, DSc
Chronic Lyme disease and Lyme dementia (incl. 5-10 minutes Q&A)

5.00 pm – 5.30 pm
Dialogue/ Panel discussions

5.30 pm – 5.40 pm
Thank you
By NorVect

We are honored
to present the speakers:

Develop New Insights

"We owe almost all our knowledge NOT to those who have agreed,
but to those who have DIFFERED"

– Charles Caleb Colton

Joseph J. Burrascano Jr

Biography: Joseph J. Burrascano Jr., MD

Joseph J. Burrascano, MD, is a well-recognized specialist in the diagnosis and treatment of Lyme and associated complex infectious diseases, and the chronic illnesses that accompany them. With over two decades of experience and research in this field, he has appeared in and on virtually every form of media, has advised the CDC and NIH, testified before the U.S. Senate, an armed services joint subcommittee, and at various governors' councils. A founding member of the International Lyme and Associated Diseases Society (ILADS), he currently is an active Board Member of the ILADS Educational Foundation.
Dr. Burrascano is retired from clinical practice. His current areas of interest include his ongoing project, The Lyme and Associated Diseases Registry, which follows each selected patient from the beginning to the end of their illness, tracking symptoms, tests, treatments and outcomes. In addition, he is actively involved in the newly developed blood culture for Borrelia, which may help in finally ending many of the controversies associated with Lyme Disease. Finally, his lifelong interest in nutrition has come to bear with his present consultative work with various nutritional supplement suppliers. No longer in clinical practice, Dr. Burrascano works full-time in the biotech arena to further medical research in tick-borne and other chronic illnesses.

Abstracts

Lecture 1: Lyme Borreliosis – History, Clinical Presentations, Testing and Diagnosis

The diagnosis of Lyme Borreliosis can be uncertain. This illness is known to have varied clinical presentations that often mimic other illnesses, and specific clinical markers are very often absent. One then tends to rely more heavily on laboratory testing. However, laboratory testing in this illness is also is inexact. Serologies all suffer from a high degree of false negative and some false positive results. Alternative diagnostic methods have been developed to improve on this situation, but these newer tests themselves have their limitations. Therefore Borreliosis remains a clinical diagnosis. The goal of this presentation is to train the practitioner how to interpret laboratory tests and how to use pattern recognition to make this clinical diagnosis.

Lecture 2: Lyme Borreliosis: Treatment and Case Histories

Lyme Borreliosis is not only a complex infectious disease, but the approach to treatment is mired in cotroversy. The history of the infectious etiology of Lyme and early treatment trials will be discussed to show how this controversy arose. Regarding treatment, Lyme Borrelia has been described to be the most complex bacteria ever studied. Factors such as bacterial adaptation to the host, ability to weaken and also evade host defenses, and subtleties of antibiotic response can lead to a complex clinical picture. Its presentation and response to treatment may vary based upon the specific species and strain of Borrelia, and also host factors. This results in the need to individualize treatment. The goal of this presentation is to equip the practitioner with enough basic knowledge of this infection and the medications used to treat it to enable him or her to be more successful in managing patients with this illness.

Richard I. Horowitz

Biography: Richard I. Horowitz, MD

Dr. Richard Horowitz, MD, is a board certified internist in private practice in Hyde Park, N.Y. He is medical director of the Hudson Valley Healing Arts Center, an integrative medical center, which combines both classical and complementary approaches in the treatment of Lyme Disease and other tick-borne disorders. He has treated over 12 000 Chronic Lyme disease patients in the last 27 years, with patients coming from all over the US, Canada, and Europe to his clinic. He is former Assistant Director of Medicine of Vassar Brothers Hospital in Poughkeepsie, N.Y., and is one of the founding members and past president elect of ILADS, the International Lyme and Associated Diseases Society. He is also past president of the ILADEF, the International Lyme and Associated Diseases Educational Foundation, a non-profit organization dedicated to the education of health care professionals on tick-borne diseases. Dr. Horowitz has presented at numerous local, national, and international scientific conferences on Lyme Disease, and has published on the role of co-infections and toxins in Lyme Borreliosis. He was awarded the Humanitarian of the Year award by the Turn the Corner Foundation for his treatment of Lyme Disease, and has dedicated his life to helping those stricken with this devastating illness. His book "Why Can't I Get Better? Solving the Mystery of Lyme and Chronic Disease" was released through St. Martin's press, November 2013, which explains his full classical and integrative approach to helping those stricken with tick-borne diseases and resistant chronic illness.

Abstracts

Lecture 1: Tick-borne Co-infections: Presentation, Diagnosis and Treatment

This talk will discuss the clinical presentation of Lyme Disease and associated co-infections, as well as the various diagnostic and therapeutic options available. Extensive scientific references on the diagnosis and treatment of different tick borne infections will be discussed, including bacterial infections such as Lyme disease, Ehrlichia, Anaplasma, Bartonella, Mycoplasma, Chlamydia, Rocky Mountain Fever (RMSF), Typhus, Tularemia, Q-Fever, Brucellosis, Tick paralysis, and other new borrelia species, such as B. miyamotoi. There will also be discussions on tick-borne parasitic diseases such as Babesiosis and other piroplasms, and the expanding number of new viral infections being found in ticks, including the Heartland virus, Powassan encephalitis and other viral encephalopathies. Classical medical treatments will be discussed for each infection, including side effects, drug interactions, and laboratory follow-up. This session will also illustrate how different co-infections may contribute to chronic symptomatology in patients previously treated for Lyme disease.

Learning objectives:

1. *To learn how to clinically diagnose tick-borne co-infections and understand the strengths and weaknesses of serological testing.*
2. *To learn different treatment strategies for treating tick-borne co-infections, including classical and integrative approaches.*
3. *To gain an understanding of how tick-borne co-infections may influence other chronic disease processes and manifestations, and lead to persistent illness.*

Lecture 2: Why Can´t I Get Better? Using the Lyme-MSIDS Map in Chronic Illness

The vast majority of patients coming to see Dr. Horowitz have remained ill for long periods of time because of lack of awareness of the clinical presentation of Lyme disease and associated tick-borne co-infections, as well as not addressing overlapping medical factors that are responsible for ongoing symptoms.

Patients with chronic symptoms after classical treatment for Lyme disease have multi-factorial causes for their illness. Dr. Horowitz calls this syndrome Lyme-MSIDS. MSIDS stands for Multiple Systemic Infectious Disease Syndrome, and represents sixteen potential overlapping medical problems contributing to persistent symptoms in the Lyme patient.

The first point on the MSIDS map is infections. Ticks are now containing multiple bacterial, viral and parasitic infections which can be transmitted simultaneously with Borrelia burgdorferi, the agent of Lyme disease. Patients infected with Lyme disease and associated co-infections are much sicker and resistant to standard therapies. Patients with Lyme-MSIDS also have evidence of associated immune dysfunction, inflammation, environmental toxins and heavy metal burdens, detoxification problems, nutritional deficiencies, hormonal abnormalities, sleep disorders, mitochondrial dysfunction, food allergies and sensitivities, deconditioning and imbalances in their autonomic nervous system. All of these factors can keep the patient chronically ill.

There is a commonly held belief in medicine, called Pasteur's postulate that there is "one cause for one illness". This does not apply to patients with chronic Lyme symptoms. The term "chronic Lyme disease" needs to be redefined as Lyme-MSIDS to more accurately reflect the multiple underlying etiologies responsible for persistent symptoms. A diagnostic and treatment model for Lyme-MSIDS will be therefore be presented as a 16 point map, so that health care providers have a broad understanding of how to approach and treat these patients with complex presentations who have failed classical therapies.

Learning objectives:

1. *To learn how to diagnose Lyme-MSIDS in the chronically ill fatigued patient. The practitioner will learn to use the 16 point MSIDS map designed by Dr Horowitz to divide the illness into separate treatable components.*
2. *To understand the biochemical and biological basis for the "sickness syndrome" seen in these patients with multi-systemic complaints, and how the "3 I's": infection, inflammation and immune dysfunction underlie many clinical manifestations.*
3. *To provide practical treatment strategies for resistant symptoms, such as fatigue, pain and abnormal neuro-cognitive functioning. This will include approaches using classical pharmaceuticals, IVIG, compounded medications such as LDN, herbal therapies and nutritional supplements that treat the infections and cytokine levels while simultaneously supporting the detoxification pathways, leading to improved clinical outcomes.*

Edward B. Breitschwerdt

Biography: Edward B. Breitschwerdt, DVM

Dr. Edward B. Breitschwerdt is a professor of medicine and infectious diseases at North Carolina State University College of Veterinary Medicine. He is also an adjunct professor of medicine at Duke University Medical Center, and a Diplomate, American College of Veterinary Internal Medicine (ACVIM).
Dr. Breitschwerdt directs the Intracellular Pathogens Research Laboratory in the Center for Comparative Medicine and Translational Research at North Carolina State University. He also co-directs the Vector Borne Diseases Diagnostic Laboratory and is the director of the NCSU-CVM Biosafety Level 3 Laboratory. A graduate of the University of Georgia, Breitschwerdt completed an internship and residency in Internal Medicine at the University of Missouri between 1974 and 1977. He has served as president of the Specialty of Internal Medicine and as chairman of the ACVIM Board of Regents. He is a former associate editor for the Journal of Veterinary Internal Medicine and was a founding member of the ACVIM Foundation. Breitschwerdt's clinical interests include infectious diseases, immunology, and nephrology. For over 20 years, his research has emphasized vector-transmitted, intracellular pathogens. Most recently, he has contributed to cutting-edge research in the areas of animal and human bartonellosis. In addition to authoring numerous book chapters and proceedings, Dr. Breitschwerdt's research group has published more that 240 manuscripts in peer-reviewed scientific journals.

Abstract

Lecture: Bartonellosis: A One Health Approach To An Emerging Infectious Disease

Bartonella species are recently rediscovered, fastidious Gram-negative bacteria that are highly adapted to a mammalian reservoir host and within which the bacteria usually cause a long-lasting intraerythrocytic bacteremia. These facts are of particular importance to physicians, veterinarians and other health professionals, as an increasing number of Bartonella species, known to induce persistent bacteremia in animal reservoir hosts, are being documented as a cause of disease in animals and people. Among numerous other examples, Bartonella henselae has co-evolved with cats, Bartonella vinsonii subsp. berkhoffii has co-evolved with dogs and wild canines, and Bartonella bovis has co-evolved with cattle. Importantly, the list of reservoir-adapted Bartonella species, including a large number of rodent species that might serve as "pocket pets," continues to grow exponentially, as new Bartonella spp. are discovered in wildlife species. Prior to 1990, there was only one named Bartonella species, whereas there are currently 30 named and numerous yet to be named or Candidatus species. Seventeen Bartonella spp. have been associated with an expanding spectrum of animal and human diseases. Epidemiological evidence and experimental transmission studies support an important role for fleas in the transmission these bacteria among cats, which can be chronically bacteremic for months to years. Cats or their fleas can harbor four zoonotic Bartonella sp. Recent reports have identified an intra-endothelial, as well as intra-erythrocytic localization for these bacteria, which represents a unique strategy for bacterial persistence within the infected host. In addition to fleas, an increasing number of arthropod vectors, including biting flies, keds, lice, mites, sandflys, spiders, and ticks have been implicated in the transmission of Bartonella sp. among animals and people. Considering the diversity of newly discovered Bartonella sp., the large number and ecologically diverse reservoir hosts, and the spectrum of arthropod vectors; the clinical and diagnostic challenges posed by Bartonella transmission in nature may be much more complex than is currently appreciated in human or veterinary medicine. Clearly, a One Health Approach is needed to better define the medical relevance of this genus of bacteria as a cause of disease in animals and human patients and to develop preventive strategies so as to avoid Bartonella sp. infections in pets and their owners. Because conventional microbiological techniques lack sensitivity, bartonellosis is usually diagnosed by PCR amplification of organism specific DNA sequences and/or through serological testing, which also lacks diagnostic sensitivity in dogs, horses and humans. Recently, the development of a more sensitive isolation/PCR approach, using BAPGM (Bartonella alpha Proteobacteria growth medium) followed by PCR amplification and DNA sequencing of organism-specific gene targets has greatly facilitated the isolation or molecular detection of Bartonella spp. DNA from the blood (tissues or other biological fluids) of sick or healthy animals, including cats, cows, dogs, horses, pigs and human beings. Most importantly, the use of this insect cell culture-based enrichment growth medium prior to PCR testing has allowed our research group to confirm that immunocompetent human patients, in particular veterinarians, animal workers and others exposed to arthropod vectors, can have chronic intravascular infections with Bartonella spp. Information relative to the validation and diagnostic availability of this novel testing platform for animal and human patients can be found at www.galaxydx.com.

Due to extensive contact with a spectrum of animal species, veterinary professionals and others with arthropod and animal exposure appear to have an occupational risk of infection with Bartonella spp. Therefore, these individuals should exercise increased precautions to avoid arthropod bites, arthropod feces (particularly fleas and lice), animal bites or scratches and direct contact with bodily fluids from sick animals. As Bartonella spp. have been isolated from cat, dog or human blood, cerebrospinal fluid, joint fluid, aqueous fluid, seroma fluid and from pleural, pericardial and abdominal effusions, a substantial number of diagnostic biological samples collected on a daily basis in veterinary practices around the world could contain viable bacteria. In the context of disease causation, Bartonella sp. have been implicated in association with endocarditis, granulomatous inflammatory lesions, persistent bacteremia and vasoproliferative tumors in animals and people. Recently, in the context of One Health and global infectious disease prevention, we proposed that an additional postulate; the Postulate of Comparative Infectious Disease Causation, be added to the original Koch's postulates. The increasing number of named Bartonella spp., in conjunction with the high level of bacteremia found in reservoir-adapted hosts, which represent a portion of the typical veterinary patient population, ensures that most veterinary professionals will experience frequent and repeated exposure throughout their careers to animals harboring these bacteria. Therefore, personal protective equipment, frequent hand washing and avoiding cuts and needle sticks have become more important for veterinary professionals, as our knowledge of this genus has improved and various modes of transmission have been defined.

Physicians should be educated as to the large number of Bartonella spp. in nature, the extensive spectrum of animal reservoir hosts, and the diversity of confirmed and potential arthropod vectors, the potential for persistent bacteremia, current limitations associated with diagnosis and treatment efficacy, and the ecological and evolving medical complexity of these highly evolved intravascular, endotheliotropic bacteria. The public should avoid arthropod contact whenever possible and use acaracides on their pets to protect the pet and family from acquiring bartonellosis.

Alan MacDonald

Biography: Alan MacDonald, MD

The last 30 years Dr. Alan McDonald has been working as a pathologist researching Borrelia and the similarities between Syphilis and Borrelia. He is the first researcher to publish evidence of the cystic form, the granular form and the cell-wall deficient form. He also has posed hypotheses that Borrelia is involved in illnesses like Alzheimer, ALS and MS. He has developed a method by a DNA probe to test borrelia in tissue. He is currently a research associate at the University of New Haven.

Abstracts

Lecture 1: Borrelia -diverse Morphologies in culture and in Human Infections

The spiral/corkscrew form of borrelia is best known from Science Textbooks. Absent from the Textbooks, but equal in importance are the forms of Borrelia which are not spiral. These non-spiral forms are the borrelia which we encounter in tissue specimens from patients with Lyme borreliosis. Non-spiral forms have been called "atypical" forms. Atypical is not scientifically correct- since any form of borrelia containing the complete content of DNA equal to the Spiral form DNA is entirely legitimate. Pathology studies over the past 35 years have revealed that the Non-spiral legitimate Borrelia exists as: uncoiled undulating wavy forms, segmented sausage like forms, string of pearls forms, detached granular forms, ring forms, straightened "bacillus like" forms, short vibrio like-forms, Crossed and abutted forms, branching forms, Ring forms, Various Round body forms (so called Cystic forms- with or without internal spiral, or granular contents), Cell wall deficient forms, Ameboid forms, and bleb forms (liposomal forms) . Each of the long list of Borrelia morphologies consitutes a "signature" of Borrelia. The validation of these diverse but legitimate signatures of borrelia is established by the study of their binding of Borrelia specific Monoclonal antibodies or by their binding of Borrelia specific DNA probes. Each of the diverse forms of Borrelia is ,under proper conditions, capable of reversion to the motile spiral textbook form of Borrelia. Therefore, "Atypical" does not belong in the same sentence with borrelia. The forms that are not in the textbook, are forms which you have not been properly introduced to. A Thirty Minute lecture will be presented, with time for questions from the Audience. A bibliography and a supplementary borrelia Atlas Website will be presented for persons with an interest in more in depth acquaintance with the complete spectrum of borrelia profiles, sizes, and shapes, and to establish an evidence based platform for the lecture curriculum.

Lecture 2: Human Borrelia Deaths, Autopsy studies, and Chronic Morbidities

This lecture is a literature review from 1906 to 2014. Tick transmitted Borrelia diseases are divided into two categories: First the Relapsing Fever Borrelia group, and Second the Burgdorferi borrelia group. Relapsing fever borrelia were extensively studied in the 19th and early 20th century in African populations. Fatal infections were encountered, and double infections with malaria and relapsing fever borrelia were eventually identified. The burgdorferi group (sensu lato) borrelia were unknown until 1981-82 when Dr. Willy Burgdorfer discovered the borrelia etiology for Lyme disease. Since 1982, an explosion of new burgdorferi species has appeared in the scientific literature. European species of the burgdorferi group cause a spectrum of diseases which includes illnesses not lined to burgdorferi Borrelia of the type described in the United States. Chronic infections with burgdorferi borrelia group in European patients are accepted by the medical community, but in the United States, chronic burgdorferi infections are the subject of great debate. This 30 minute lecture will encapsulate the topics of human fatalities, autopsy studies, and chronic morbidities for both the United States and European forms of burgdorferi type borreliosis as documented by peer reviewed publications in the scientific and medical literature from 1982 through 2014. A question and answer period will follow the lecture. A bibliography will be presented to establish an evidence based platform for the lecture curriculum. A website will be made available for those who desire to study in greater detail.

Eva Sapi

Biography: Eva Sapi Ph.D

Associate Professor and University Research Scholar & Coordinator Director of Lyme Disease Program. Department of Biology and Environmental Science University of New Haven. Dr. Sapi received her Ph.D. degree in Genetics from the University of Eotvos Lorand (Budapest, Hungary). She is an Associate Professor at the University of New Haven (Connecticut) where she teaches graduate biology courses and carries out Lyme disease research with her graduate students. To date, over 70 graduate students have received training in Lyme disease related research. In the last several years UNH Lyme disease research group has identified an alarming increase in the co-infection rate in deer ticks in Southern Connecticut, including discovery of novel co-infections such microfilarial nematode and mycoplasma species.
Dr. Sapi organized and chaired six Lyme Disease Symposiums at the University of New Haven during the last several years.

Abstract

Lecture: Biofilms and antibiotic resistance of Borrelia burgdorferi

The lecture will address various mechanisms associated with Borrelia infection that may help this bacteria to survive adverse environmental conditions, immune response and even therapeutic interventions. Borrelia species are known pleomorphic pathogens and they are able to adopt alternative, defensive morphologies to evade the immune response and even to increase their antibiotic resistance. One of these morphologies is the cyst or round body form which is known to be resistant to the front line antibiotic treatment.

Another possible explanation for persistent clinical symptoms might be the formation of another highly antibiotic resistant form called biofilm. We have employed several modes of microscopy and staining techniques to characterize potential biofilm forms of different Borrelia species. Among optical microscopy techniques, dark field microscopy was used to observe the interaction of peripheral spirochetes with the biofilm, differential interphase microscopy (DIC) revealed the heterogeneity of the biofilm matrix, and fluorescence microscopy enabled observation of the sessile internal biofilm population. A relatively new technique, atomic force microscopy, was used to directly scan the topography of the biofilm. Our results demonstrated that Borrelia is capable of developing biofilms on different abiotic and biotic substrates. Analyzing the extracellular substance of the aggregates for potential exopolysaccharides revealed the existence of both sulfated and nonsulfated/ carboxylated substrates, predominately composed of an alginate with calcium and extracellular DNA present. In summary, we have found substantial evidence that Borrelia is capable of forming biofilm in vitro. In this lecture, we also provide evidence of Borrelia biofilm structures in infected tissues in vivo.

In summary, our research findings strongly suggest that the Borrelia biofilm likely provides a refuge for chronic Lyme infection, and offers an additional avenue of attack for potential treatments for Lyme disease. In addition, in this lecture, we also summarize our research data on evaluating different antimicrobial agents that may help to reduce or even eliminate Borrelia biofilms, such as different combinations of known antibiotics and medicinal herbal agents.

Jyotsna Shah

Biography: Jyotsna Shah, Ph.D, CCLD, MBA

Dr. Jyotsna Shah is the Vice- President and Laboratory Director of IGeneX Laboratory, Palo Alto, CA and founder and Vice- President of Research and Development of ID-FISH Technology Inc., Palo Alto, CA. IGeneX is a leading reference laboratory for diagnosis of Lyme and associated diseases.
ID-FISH is a biotechnology company that specializes in development of Fluorescent In Situ Hybridization (FISH) assays for infectious diseases. ID-FISH has developed FISH assays for direct detection and speciation of malaria parasites in blood films and mycobacteria in sputum specimens and cultures. She has over 20 years of research experience in immunology, molecular biology and microbiology. She got her B.Sc. and M.Sc. in Biological Sciences from UK and her Ph.D. in diagnostic immunology from Nairobi University. She then joined International Laboratory for Research on Animal Diseases (ILRAD) as a post-doctoral scientist where she started the first DNA sequencing laboratory in E. Africa. On completion of her fellowship, she joined Harvard University, Department of Tropical Medicine as a research fellow and continued work on development of molecular tools for diagnosis of parasitic diseases. Since then she has worked at several Biotechnology companies, mostly involved in development of novel molecular technologies for diagnosis of infectious diseases. She is a world expert on use of Fluorescent in Situ Hybridization (FISH) technique for direct detection of pathogens in clinical samples. For the last 16 years she has been at IGeneX, where she introduced the first Fluorescent In Situ Hybridization (FISH) test for Babesia and also set up the PCR department for tick-borne diseases. She has received several NIH grants for development of FISH assays for malaria and TB in the last 10 years. Currently she is working with leading TB and Malaria research centers in South America, Asia and Africa. Dr. Shah has over 20 patents and many formal publications.

Abstract

Lecture: What Have We Learnt About Diagnosis of Lyme and Other Tick-borne Diseases in The Last 20 Years?

In Europe, Lyme disease (LD) caused by Borrelia burgdorferi (BB) complex is the most frequently reported tick-borne disease. BB complex B. burgdorferi, B. afzelii, B. garinii, B. spielmanii and B. valaisiana.
BB complex bacteria are transmitted to humans by the bites of infected ticks. These ticks also carry and transmit several other pathogens such as Babesia, Ehrlichia, Bartonella,Rickettsia species and viruses. Babesiosis and ehrlichiosis are the two most common co-infections among patients with Lyme disease. Disease diagnosis is usually made based on patient history, symptoms and clinical test results. Clinical samples are usually tested by direct or indirect methods. For tick-borne diseases, direct methods include specific DNA detection by polymerase chain reaction (PCR), rRNA detection by fluorescent in situ hybridization (FISH), antigen detection and culture methods. Indirect methods include enzyme-linked immunosorbent assay (ELISA), immunofluorescent assay (IFA) and western blots. Thus the current status of testing of Lyme and associated diseases with special emphasis to the European patients will be discussed.

Christian Perronne

Biography: Christian Perronne, Ph.D, MD

Christian Perronne, MD, PhD, qualified in Internal medicine, is Professor of Infectious and Tropical Diseases at the Faculty of Medicine Paris Ile-de-France Ouest, University of Versailles-St. Quentin, France. He is Chief of a Department of Medicine at the Raymond Poincaré University Hospital in Garches (Hauts-de-Seine), in the Great Paris area. He was vice-chairman of the National Reference Centre on Tuberculosis and Mycobacteria at the Pasteur Institute in Paris until 1998. He is past-President of the French College of Professors of Infectious and Tropical Diseases (CMIT), co-founder and past-President of the French Federation of Infectiology (FFI), and past-President of the French National Technical Advisory Group of Experts on Immunisation (CTV). He was chairman at the French Drug Agency (ANSM, ex-AFSSAPS), of the working group making National evidence-based guidelines for the antibiotic treatment of respiratory tract infections. Christian Perronne is President of the Communicable diseases commission at the High Council for Public Health, making recommendations for the public health and vaccination policies. He was member of the scientific committee of the French Institute of Research in Microbiology and Infectious Diseases (IMMI, INSERM) until January 2013. Christian Perronne is President of the National Council of Universities (CNU), subsection Infectious and Tropical Diseases. He is Vice-president of the European Advisory Group of Experts on Immunisation at the World Health Organization. He is author or co-author of 218 scientific publications.

Abstract

Lecture: The gap between current diagnostic tests for Lyme disease and associated diseases and the diversity of pathogens isolated in the world.

Lyme disease, caused by Borrelia burgdorferi and transmitted by ticks, has long been considered to be a rare regional incidence. There is now evidence that very similar bacteria infected humans in Europe during the ice age and that there is a worldwide distribution of strains belonging to the B. burgdorferi sensu lato complex, some of them being possibly pathogenic. Recent data suggest that Lyme disease, characterized by a broad variety of symptoms, could be a public health threat. In the United States, the number of reported cases has jumped dramatically from 30 000 cases to 300 000 cases per year. The Centers for Disease Control and Prevention (CDC) are now concluding that "Lyme disease is a tremendous public health problem in the United States". The lack of a gold standard for diagnosis makes producing accurate statistics difficult. The gap between official recommendations, mainly based on expert opinion, and daily medical practice is widening. Infections with other borreliae or other pathogens which can further confound the clinical picture are rarely considered or tested for. Several species of borreliae belonging to the B. burgdorferi senso lato complex are occasionally isolated in symptomatic patients (B. spielmanii in early skin disease, B. bisettii, B. valaisiana, B. americana, B. andersonii, and more recently B. kurtenbachii). The pathogenic role of B. lusitaniae, isolated in a case of vasculitis, remains to be substantiated. B. lonestari could be responsible for Lyme-like disease. Unfortunately data are lacking to make reliable correlations between their geographic distribution and human cases of Lyme-like diseases. Borrelia miyamotoi, discovered recently and phylogenetically close to relapsing fever borreliae, is now recognized as a pathogen responsible for either relapsing fever or Lyme-like disease in Asia, Europe and North America. B. miyamotoi usually does not cross react with B. burgdorferi tests. B. burgdorferi serology remains unsatisfactory as a diagnostic tool. In 2011, the CDC improved their case definition by including single-tier IgG immunoblot seropositivity as a diagnostic criterion for Lyme disease. Surprisingly, this new definition is not taken into account in the current guidelines. Coinfections with other bacteria, viruses or parasites add to the complexity of Lyme and associated diseases. Among patients with early Lyme disease in the USA, 2 to 12% were found to also have human granulocytic anaplasmosis, and 2 to 40% babesiosis. A new tick-borne bacterial pathogen, Candidatus Neoehrlichia mikurensis, was reported in Switzerland. Classical forms of the disease are usually easy to manage, but some pleomorphic medical conditions, often following tick bites, may prove confusing to physicians. These new data on a historical, geographical and microbial level should prompt the medical community to adopt a new approach. At the very time when Lyme disease is being recognized as a possible global health challenge, a paradigm shift for this infection and for possible associated occult infections, due to other bacteria, parasites or viruses, is urgently needed. Next generation sequencing allowed the identification of various bacteria from Ixodes ricinus ticks in France: Anaplasma phagocytophilum, Bartonella henselae, B. grahamii, Borrelia afzelii, B. garinii, B. burgdorferi, B. miyamotoi, Candidatus Neoerlichia mikurensis, Ehrlichia canis, Rickettsia canadensis, R. felis and R. helvetica. These new genomic techniques should be developed for diagnosis in humans.

Judith Miklossy

Biography: Judith Miklossy, Ph.D, MD, DSc

Judith Miklossy received her MD and PhD degrees and Board certificates of specialization in Neurology, then in Psychiatry and psychotherapy, (EU and AELE conform) from the Faculty of Medicine of the University of Debrecen, and the National Board of specialization in Neurology and Psychiatry in Hungary. She received the university degrees of Privatdozent and Master of Education and Research (MER) – equivalent of DSc and assistant Professor — and the Board certificate of specialization in Neuropathology from the University of Lausanne and the Swiss Medical Federation (FMH), in Switzerland. She was head of Neurodegeneration research group at the University Institute of Pathology (CHUV, Lausanne), Switzerland, for over ten years. She has done molecular biology research and participated in the introduction of Alzheimer's research in Temple University, Philadelphia and in the USA. She headed the neuropathology division of Kinsmen Laboratory of Neurological Research, in The University of British Columbia, Vancouver, and Canada. She is actively involved in research on Alzheimer's disease and Lyme disease for more than 25 years. She is on the board of directors or scientific advisory board of several international organizations and foundations. She is the founder and previous president of the Alzheimer's Prevention International Foundation and presently director of the foundation and of the International Alzheimer Research Center in Switzerland. Her presentations on international meetings and her publications were repeatedly considered for CME and press releases.

Abstract

Lecture: Chronic Lyme disease and Lyme dementia

Whether the spirochetes persist in affected host tissues and cause the late/chronic manifestations of neurosyphilis was also the subject of long debate in the history of syphilis, and today, the same question is in the center of debate with respect to Lyme disease. Detection of Treponema pallidum in the brains of patients suffering from general paresis established a direct link between persisting infection and tertiary manifestations of neurosyphilis. As pathological changes characteristic of tertiary neurosyphilis also occur in Lyme neuroborreliosis and Borrelia burgdorferi was detected in tertiary brain lesions clearly indicate that in a similar way to Treponema pallidum, Borrelia burgdorferi is also responsible for the neuropsychiatric manifestations of late or chronic Lyme neuroborreliosis. Late Lyme neuroborreliosis is accepted by all existing guidelines in Europe, US and Canada. The terms chronic and late are synonymous and define tertiary Lyme disease. The use of chronic Lyme disease as a different entity is inaccurate and confusing. It is well established that chronic spirochetal infection can cause slowly progressive dementia, cortical atrophy and amyloid deposition in the atrophic form of general paresis in syphilis. Various types of spirochetes, including periodontal pathogen spirochetes and Borrelia burgdorferi may well behave as Treponema pallidum, and cause dementia, vascular infarcts and other tertiary manifestations of chronic neurospirochetosis.

Recent observations show that Borrelia burgdorferi and several periodontal pathogen Treponemes (T. pectinovorum, T. amylovorum, T. lecithinolyticum, T. maltophilum, T. medium, T. socranskii) can persist in the brain and cause dementia and beta amyloid deposition. A statistically significant association following Hill's criteria is in favor of a causal relationship. As the host pathogen interactions in chronic spirochetal infections are similar to those occurring in AD indicates that escaping host immune reactions, spirochetes can sustain chronic infection and inflammation, cause dementia. Confirmation and reproduction of these data by historic and recent observations made by others is highlighted. If various types of spirochetes are implicated in the pathogenesis of AD, similarly to syphilitic dementia, Alzheimer's dementia might be prevented. The impact would be inestimable.

Armin Schwarzbach

Biography: Armin Schwarzbach, Ph.D, MD

Dr. Armin Schwarzbach is a MD and a specialist in laboratory medicine from the Borreliose Centrum Augsburg/Infectolab, Augsburg, Germany. He began by studying biochemistry at Hoechst AG, Frankfurt, Germany and pharmacy at the University of Mainz/Germany in 1984. Afterwards he studied for 6 years at the University of Mainz/Germany and finished his MD in 1991. Dr. Schwarzbach developed the worlwide first Radioimmunoassay (RIA) for human Gastric Inhibitory Polypeptide (hGIP) from 1986 – 1991, reaching his PhD in 1992.

He worked as a medical assistant in internal medicine, oncology, cardiology, gastroenterology and infetiology afterwards for several years. By 1993 he had started specializing in laboratory medicine for another 4 years in infectiology, microbiology, immunology, hematology, clinical chemistry, endocrinology and gynecological endocrinology.

Dr. Schwarzbach is C6 Board Member of the International Lyme and Diseases Society, ILADS, USA and the Chair of the laboratory test and the international committees of ILADS. He was appointed in March 2013 as the International expert for the Chief Medical Officer´s Clinical Advisory Committee on Lyme Disease in Australia (CACLD) of the Australian Government, Department of Health and Ageing, Canberra, Australia. In November 2013 Dr. Schwarzbach was appointend as the European expert for Lyme disease in Ireland by the Irish Parliament, Joint Committee on Health and Children, Dublin, Ireland. He is also member of the new working group for Lyme disease of the Haut Conseil de la sante publique, Paris, France.
Dr. Schwarzbach is member of the German Borreliosis Society, the Swiss Association for Tick-borne diseases, the German Association of Clinical Chemistry and Laboratory Medicine, the German Society for Medical Laboratory Specialists and the Australasian Integrative Medicine Association. Dr. Schwarzbach is the co-founder and CEO of the Borreliose Centrum Augsburg and Infectolab laboratories in Augsburg/Germany and specializes in the diagnostics and treatment for patients with tick-borne diseases for over 10 years now.

Abstract

Lecture: Borrelia-Elispot: A Game-Changer in diagnostics?

The current CDC guidelines for diagnosing Lyme disease involve serological tests for Borrelia burgdorferi antibodies like Borrelia-Immunoblot/Westernblot testings. But it is well-known, that Borrelia-Immunoblots/Westernblot show a very weak sensitivity of just around 60% in chronic Lyme disease and cannot help regarding the question of an active infection.

Enzyme-linked immunosorbent spot (ELISPOT) is an effective method for the assessment of T-cell immunity by measuring stimulated antigen specific T-cells. The ELISPOT method is the FDA gold standard in the diagnosis of an active Tuberculosis infection. It is a highly sensitive technique for detecting immune-cells, that secrete signature proteins by cytokine-profiles. The ELISPOT method is the most sensitive test in diagnosing Lyme disease by a sensitivity of 84% and a specificity of 94% for the detection of an active Borrelia burgdorferi infection. The way how to diagnose chronic active infections like Tuberculosis or Lyme disease should be done by modern and sensitive T-cell assays like the Borrelia-ELISPOT method instead of the insensitive and static anti- body tests by Immunoblot/Westernblot. Another big advantage should be the fact, that the ELISPOT method is an external CE-certified standardized test, commercially available, which opens the door for the accreditation of the Borrelia-ELISPOT for all laboratories around the world in a standardized, comparable way.

Carl-Morten Motzfeldt Laane

Biography: Carl-Morten Motzfeldt Laane, PhD

Prof. Laanes long-life interest in microscopy started back in 1947. His father worked as a physician in the small town of Toensberg, Norway. Among his patients there were several sailors possibly infected with syphilis. This spirochete was detected by simple darkfield microscopy or by mixing samples from patients with black ink. In 1953 when he was 13 years old his father was employed as a physician at one of Norway's largest mental hospitals. Its director was interested in botany had permitted a university research fellow to start an experimental field on the hospital ground. She was studying cyto-genetics of arctic poppies and taught him to stain chromosomes in pollen-mother cells with DNA-specific stains.
At the same time J.D. Watson and Francis Crick presented their DNA-structure model in Nature.
How this was related to chromosomes was only superficially known, but the so-called Feulgen staining was then widely used. Prof. Laane started his university studies in 1958, and received his PhD in microbiology in 1971. He has authored or co-authored about 160 scientific articles, mostly in English, some in German or Norwegian. These include popular science, book chapters, as well as 4 textbooks on general microscopy and techniques. 60 years after laying his hands on a microscope for the first time, Laane is still following his passion for microscopy and has over the years become one of the leading biologists, with a reputation reaching far beyond Norway.

Abstract

Lecture: Easy Detection of Bacteria and Parasites in Infected Human Blood by Microscopy. Some Simple, Low-cost Methods.

Although spirochetes living in some kind of symbiosis in teeth biofilms were among the first bacteria to be discovered by Leeuwenhoek in 1695 a number of medical microbiologists still reject the usefulness of microscopy for showing bacteria and parasites in human blood. In fact, human blood is far from "sterile" and contain a number of various organisms both in so-called healthy persons and persons suffering from severe disease. I will show how simple adaptions of well known microscopical techniques are able to reveal very detailed information about both bacteria, biofilms and some blood parasites. It is possible even to keep and study single bacteria, biofilms and parasites for weeks using videofilming, time-lapse photography and high-resolution digital imaging. In some patients extreme infections appear to be present, and preliminary studies raise basic questions about the very concepts of medical microbiology.

Åshild Andreassen

Biography: Åshild Andreassen, Ph.D.

Åshild Andreassen has a Master of Science in Biotechnology from NTH (NTNU) and a PhD in Biotechnology from the University of Oslo. Her PhD was about how genes are affected by the environment and how this can contribute to cancer. Her Post doc. from the Norwegian Institute of Public Health (NIPH) was about how genes are affected by toxic substances formed during frying and cooking of food and how these substances could contribute to colon cancer. Currently, she is working as a Senior Researcher at the Department of Virology, Division of Infectious Disease Control, NIPH. She is currently working with genes from tick-borne encephalitis virus (TBEV), mainly found in ticks, but also with human tests and the development of improved diagnostics. Andreassen is part of the inter-regional project Scandtick between Norway, Denmark and Sweden. The aim of the project is to improve the knowledge and methodology of the increased tick-borne infections within the region.

Abstract

Lecture: ScandTick – Regional cooperation against tick-borne diseases.

Recently, within the Øresund-Kattegat-Skagerrak (ØKS) region the number of human infections caused by bacteria or virus infected ticks has increased. Ticks are arthropods with four life stages and they need a blood meal from humans or animals to transfer from one stage to the next stage. When they bite and feed blood from humans or animals, they can simultaneously transfer bacteria or viruses. The most common known tick-borne diseases are Borreliosis and Tick-borne encephalitis (TBE). The increased risk of infection due to the increased number of ticks carrying tick-borne infections may reduce the life quality of people in our region by preventing people to visit forests and recreation areas. The social costs for the society may also be influenced by increased hospitalization and visits to general practitioners. This is similar in all countries within the region. In this project we would like to know how we can create a better structure across the borders to handle these problems concerning increased tick-borne infections within the region. How can we get a common view between our three countries of these problems? Are there any obstacles that need to be addressed? What information channels are necessary to use for an improved communication about tick-borne diseases?

To get a common view of the problem within the region we need to compare and evaluate the medical microbiological diagnostic tools that are used within this region. Then we need to map the Borrelia bacteria and TBE virus within the region. Our results will then be the basis for understanding and counteract cross-border barriers for the most effective preventive work and to develop better information structures that reaches the general public within the region.

Randi Eikeland

Biography: Randi Eikeland, Ph.D, MD

Researcher and senior consultant, MD Ph.D Randi Eikeland is specialized in neurology. Eikeland is employed by Sørlandet hospital in Norway and has worked as a clinician and researcher since 1997. She has published several articles about treatment and long-term prognosis after Lyme neuroborreliosis in Europe in peer-reviewed papers. Since 2014 she is also the leader of the newly established National Advisory Unit on Tick-borne diseases in Norway.

Abstract

Lecture: European Neuroborreliosis Long-term Follow-up

Most LNB patients experience improvement in neurological symptoms within weeks to a few months after antibiotic treatment, but years after treatment 10 – 50% report persisting or new symptoms including fatigue, concentration difficulties and musculoskeletal problems, often named Post Lyme Disease Syndrome (PLDS). The prevalence and impact of PLDS is debated since similar symptoms are common in the general population. We assessed the long-term impact of LNB on Health Related Quality of Life (HRQoL) in a controlled study of well-characterized adult European LNB patients.

We also compared the neuropsychological (NP) functioning 30 months after treatment to a matched control group and described clinical and demographical factors associated with reduced HRQoL and fatigue after treatment of LNB in a cohort of 50 treated LNB patients from southern Norway. HRQoL was reduced in well-characterized European patients treated for LNB with a current recommended antibiotic regimen 30 months earlier, as compared to matched controls.

Fatigue was the most disturbing persisting complaint. Mild neurological deficits were found in 28 % of the patients. Most of the patients who were treated for European LNB 30 months earlier had comparable NP functioning to matched controls, but a small subgroup had cognitive impairments. It seems like a more serious LNB disease, a longer duration of symptoms before treatment, and non-complete recovery at four months predict a poorer long term outcome. Thirty months after treatment of LNB 18 out of 50 patients (36%) had objective findings in terms of neurological deficits and/or cognitive impairment.

Bela Bózsik

Biography: Bela Bózsik, MD

Dr. Bela Bózsik is a retired physician with 9 years of experience in clinic-pathology, patho-histology and 25 years in serological investigations. He has a unique experience in diagnostics and treatment of Lyme borreliosis and still continues his research after his retirement. After the discovery of the Borrelia spirochete in the early eighties, Dr. Bózsik was soon engaged in work in the field of tick-borne diseases. With his background from laboratory medicine, he had good insights in the development of test methods, and he soon understood that both diagnostics and treatment would pose vast challenges in the years to come. Dr. Bózsik has been work ing mainly with classical dark-field microscopy, and has developed a unique patented diagnostic method to distinguish between the spirochetes and artefacts in the preparations.

Abstract

Lecture: DualDur®reagent & method in diagnosis & pathogenesis for TBD – 30 years practice

Dr. Bózsik has developed a patented reagent, DualDur®, that is added to a blood sample before analysis using a microscopy. This reagent makes the other objects in the blood rigid and motionless while the Borrelia bacteria are preserved and still moving normally. Since 1986, this method of dark-field microscopy has been applied to several thousand human blood samples. What makes DualDur® so unique are **1)** The artificial products & „filaments" do not disturb the results; **2)** The Spirochetes of the plasma are nearly 1000 times concentrated in the second pellet and easily counted, and **3)** The Spirochetes remain intact and alive, so they are easy to spot, as the other membranes are stiffened. There is no fixative or artificial agent, therefore the bacteria can be discovered in a natural or nearly natural environment. The results have been proven with immunocytology by monoclonals donated by Barbour and Schriefer and electron microscopy with immune and negative staining.

Spirochetes were observed and differentiated as Basic phenomena

1. Dividing;
2. Gemma, Nativity of Gemma, Inhibited Gemma development, damaged Gemma, and Sphaerula with a distinction among them;
3. Blebs, central/peripheral Shedding. These informed us about the pathogenic events that abundant macromolecular immunocomplexes consumed up the antibodies and help to understand the development of Lyme borreliosis chronica seronegativa.

In 2007 intracellular parasites causing different Tick-Borne Diseases were detected just below the buffy-coat after centrifugation. Currently, the plasma and also these critical zones are investigated for the diagnosis of Bartonellosis, Babesiosis, and Anaplasmosis/Ehrlichiosis beside Lyme borreliosis chronica in one sample with DFMicroscope. In the evaluation, the following remarks should be taken into consideration: it is a concentrated result and the developing pathogenic events are depending mainly on the relationship between the pathogenicity of B.burgdorferi sensu lato and the physical state and reactivity of the body. Please think of the patients (who are anxious and who suffer) and the medical teams.

Cathy Rubin

Biography: Cathy Rubin (conference host)

C. M. Rubin is the founder of CMRubinWorld, an online publishing company focused on education, entertainment and lifestyle, and the co-founder of Henmead Enterprises, Inc., a publishing and strategic consulting company. Rubin's 30 years of experience as an author, journalist, editor, executive, and entrepreneur in the fields of publishing, film, television, video, health and education have fostered her expertise in identifying and evaluating national and global trends in key economic sectors and industries, including the impact of innovation and technology. Rubin is the author of three best-selling books and two widely read online series for which she received a 2011 Upton Sinclair award. Her award winning Huffington Post blog, "The Global Search for Education," brings together distinguished thought leaders from around the world to explore the key education issues faced by most nations. Her acclaimed "Ticks" series within "The Global Search for Education" is followed by medical professionals and patients all over the world.

Chantal Perrin

Biography: Chantal Perrin (conference host, Q&A)

After years working in fiction as an assistant director and line producer with directors such as Adrian Lyne, or Terry Gilliam, Chantal Perrin started directing commercials and documentaries;

In 2006, she founded Petite Maison Production, a production company where she produces art films, commercials and documentaries. The last production, Mr.X in 2014 has been selected in numerous Film Festivals such as Sundance or Rotterdam and was presented this week at Cannes Festival.

We would like to express our sincere thanks and appreciation to our:

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