Knowledge Nurtures Hope

The Myocarditis Foundation Announces the Award of Two Research Fellowship Grants in 2007

The Foundation awards funds to support research related to all forms of myocarditis. The goal of the Foundation’s research program is to advance medical knowledge on the disease and to save more lives.

Candace Moose, Director: “We are pleased to support the career development of such outstanding young physician scientists as Drs. Chakova and Heidecker and look forward to the contribution they will undoubtedly make in the field of myocarditis research.”

“The Role of Monocytes in Autoimmune Myocarditis” – December 2007

For a long time, our laboratory under the leadership of Dr. Noel Rose has been engaged in studying the mechanisms by which inflammation damages the heart. For these investigations, we have established an experimental model in mice using immunization with cardiac myosin, an important component of heart muscle cells. Lately we have concentrated on the cells that are the most abundant in infiltrates both in human giant cell myocarditis and in our experimental mouse model - macrophages. We have discovered recently that there are different types of macrophages in heart infiltrates and that they can either be disease promoting or - surprisingly – suppressing in myocarditis. Our preliminary data indicate that the types of macrophages that dominate during the course of myocarditis are influenced by products secreted by infiltrating T cells. Our experiments suggest a product of 1 T cells; L-17 does not induce proinflammatory macrophage function. Since myocarditis in the mouse model is driven by L-17 cells, this could indicate that L-17 activated macrophages are not pathogenic in myocarditis but might even be beneficial. A successful mapping of the role of different macrophage subpopulations during myocarditis could have direct implication for novel potential therapies for myocarditis. Daniela Chakova, MD, PhD, Johns Hopkins University

“Gene Expression Profiling for Detection of Myocarditis” – December 2007

Over the past 10 years, our group intensifed its research in inflammatory heart disease or myocarditis. Myocarditis is estimated to account for about 10-30% of cases with heart failure. Given that heart failure is a severe disease often resulting in poor clinical outcome, early detection of myocarditis becomes extremely important to induce specific treatment that cure patients. While current diagnostic standards for inflammatory heart disease have insufficient accuracy, our group addresses this issue with a highly sensitive technique, namely gene expression profiling or microarray technology. With this explorative technique, we identified a biomarker, containing 39 genes that distinguish very accurately patients with myocarditis from other types of cardiomyopathy from a single heart biopsy. Besides important improvements in diagnosis of inflammatory heart disease, our findings also offer insight into the pathophysiology of myocarditis on the genetic level and may create the basis for new evolving therapies.

Based on our preliminary data, we are currently enrolling patients for a prospective clinical trial, in which we will test the accuracy of our novel biomarker in 150 patients. In order to assure the best possible diagnostic reference to which we will compare our results, state-of-the-art assessment for myocarditis will be combined with novel tools, such as screening for serum antibodies, viral nucleic acids and magnetic resonance imaging. Furthermore, we are seeking to discover markers in corresponding blood cells of our patients, which may allow the use of blood samples as surrogate for heart biopsies. This would be extremely beneficial both for patients and the health care system in terms of cost, and practicality. Bettina Heidecker, MD, The University of Miami

Thank You Donors!

The Foundation gratefully acknowledges the following donors for their contributions to the support of research on myocarditis:

Andrew H. & Suzanne K. Altman

The Myocarditis Foundation

The Myocarditis Foundation

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Christian’s Story

This is the story about our son, Christian. We loved taking him places. He loved the park and the beach. We were really enjoying being parents.

At 18 months, Christian had an illness in which he had a high fever, cough and difficulty breathing. We took him to the emergency room where an EKG was done, which led people to seek medical attention. Most patients recover within weeks, although EKG abnormalities persist for months. The clinical course of myocarditis is highly variable. In a majority of patients, the disease is self-limitied and there is complete recovery without any further consequences.

When Should I Seek Medical Attention?

Heart failure of recent/sudden onset due to an enlarged heart represents one of the most dramatic and clinical relevant presentations of acute myocarditis. Patients should go to an Emergency Room where an EKG, chest x-ray and blood work will be performed. A cardiac biopsy is the only definitive procedure for unequivocally diagnosing the disease. Those patients presenting with luminant myocarditis are at increased risk of death or need for heart transplant. Giant cell myocarditis is the most fatal form of the disease with an average time to death or transplant of about 6 months.

What is Needed to Change the Outcome of Myocarditis?

Effective forms of treatment and better diagnostic techniques are urgently needed as well as a better understanding of the disease and a more complete understanding of the various types of myocarditis. The Myocarditis Foundation seeks to hasten progress in understanding the disease by awarding research grants to help guarantee that new and innovative avenues are thoroughly funded and explored.

Thank you for your support. Together we can make a difference.

A Word from the President of The Myocarditis Foundation

by Dr. Leslie T. Cooper, Professor or Medicine, Mayo Clinic, College of Medicine and Consultant in Cardiovascular Diseases at Mayo Clinic, Rochester, MN

What is Myocarditis?

Myocarditis is a disease that often attacks otherwise healthy people. The disease is characterized by marked inflammation and damage to the heart muscle. Several thousand patients per year are diagnosed in the US. Approximately 2% to 20% of all cases of sudden death in young adults are due to myocarditis. There are many causes, including viral infections, autoimmune diseases, environmen tal toxins and adverse reactions to medications.

What Are the Long Term Consequences?

Although long term consequences in severe cases include death or heart transplantation, many cases of acute myocarditis have no symptoms and are identified only by an EKG or a blood test to detect heart damage. The percentage of patients with heart failure is the major long term complication. Myocarditis and the resulting complication of an enlarged heart are the cause of approximately 45% of all heart transplantations in the US.

When Does Myocarditis Appear?

Clinical presentations of myocarditis range from having no symptoms to EKG abnormalities to severe heart failure to cardiogenic shock. The time of illness becomes involved 7 to 10 days after a systemic viral illness. The majority of patients have no specific cardiovascular complaints. Symptoms include fatigue, shortness of breath, palpitations and chest pain.

Why Should I Go To The Doctor?

Heart failure is the most frequent presentation of myocarditis which leads people to seek medical attention. Most patients recover within weeks, although EKG abnormalities persist for months. The clinical course of myocarditis is highly variable. In a majority of patients, the disease is self-limitied and there is complete recovery without any further consequences.

When Should I Seek Medical Attention?

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Bettina Heidecker, MD, The University of Miami

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Andrew H. & Suzanne K. Altman
“I had a blast,” he said, “We ended up
Brian said it was an amazing experience.
Except for some soreness in his legs,
Sunday’s race.
ber 55, Jeremy’s hockey number, during
Fish” from Jeremy as a child, donned the
cles and can lead to sudden death.
causes inflammation of the heart mus
annual PF Chang’s Rock ‘N’ Roll Arizona
the streets over the weekend at the fifth
that way for many, many years to come.
Christian is enjoying school and playing
and completely out of breath! It was and continues to be
not caught early enough and his heart had an excessive
medication was not working, and that he would need
failure (CHF). The diagnosis was myocarditis, most likely viral
in nature.
That was the day that our lives would change forever.
In the 14 years since Jeremy’s death,
more accurate and more quickly.
Myocarditis is a disease that needs to be diagnosed and
Myocarditis Foundation would like to extend a spe
Greetings Friends and Supporters
Crossing that finish line was great! But to me, this
marathon and fundraising experience has been more
about the journey than the final destination. Pushing
through obstacles, injuries, and mental barriers has
taught me a lesson of mind over mind over matter
(yes, MIND over mind over matter - it took me the
duration of a 20 mile run to wrap my brain around
that one!). The inspiring stories of other individuals
affected by myocarditis and other diseases. The
support of friends and family. The encouragement
from people I have never met before. All of this acted
as an impelling force throughout training. I couldn’t
have done it without you.
The Myocarditis Foundation has already granted
two research fellowship awards for myocarditis re
search, and everyone’s continued support will allow them to provide one or two more in 2008. That’s
again for your contribution! I anticipate that my
efforts working with MI will persist in an effort to in
crease awareness and support research of this
devastating disease.
Who’d like to run it next year with me?

The above article was written by Christian’s parents.

A Message from the Board of Directors
As a result of our fall fundraising campaign, The Myocar
ditis Foundation was able to award two research grants in
2007. Support for research into the causes of and treat
ment for myocarditis is one of the most important objec
tives of the Foundation. Through your generosity we are
advancing our goals of research, awareness, and educa
tion. Thank you for your continued support.
Sincerely,
James A. Moose
Director

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Scientific Director, The Heart Centre-University Health

John Lent, Ambassador for The Myocarditis Founda
tion, brother-in-law of Can
ridge, son of over
100 marathons, ran with Brian to offer support & en
couragement.

Brian Fishman

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