FDC BEAT

www.fdc.to
Newsletter of the Familial Dilated Cardiomyopathy Project at the University of Miami
Miami, FL, USA **Volume IX, Issue 1** **March 2008**

The FDC Research Team Prepares for Screening Trips

Greetings from the FDC Research Group! In July, 2007, our study moved from Portland, OR to the University of Miami (UM), in Miami, FL to expand and continue our work determining the genetic causes of dilated cardiomyopathy. UM offers great potential for collaboration with other researchers and scientists, and we expect to make much progress expanding our knowledge of FDC and identifying new disease-causing genes.

Now that the FDC Research Project has settled in its new home, we are beginning efforts to rescreen some of our larger families. These families have multiple living relatives with dilated cardiomyopathy. Studying these families on an ongoing basis not only helps us to understand how symptoms of FDC evolve, but also provides clues to the discovery of new FDC-causing genes. We aim to conduct these screenings on a consistent basis over the next few years.

This issue of the FDC Beat reviews the process and purpose of screening for FDC, and highlights the differences between clinical and research screening in the FDC Project. Frequently asked questions are also answered.

Clinical and Research Screening in the FDC Project

There are two reasons for individuals in families to undergo screening. The first reason is for medical diagnosis and treatment, which in this article we refer to as **clinical screening**. The second reason is for research purposes, which we refer to as **research screening**.

Even though the purposes of clinical and research screening may be different, the testing is the same: a physical exam, an echocardiogram and an ECG. Additional testing may need to be done if these tests are abnormal. For research screening, we also obtain a blood sample and use it to prepare DNA for genetic studies.

Since 1993, the FDC Project group has performed research screening for hundreds of individuals from 10-12 very large families that have multiple relatives with FDC.

The goal of each trip has been to conduct research screening in all members of these large families to identify those members who have cardiomyopathy and those who do not. In some of these families we have identified the genetic cause of their disease.

Each of those trips usually took place at a local clinic over a single weekend. The success of the screening trips is due in large part to the commitment and enthusiasm of the participating families who have helped to provide important clues about the genetics of FDC.

In the past five years we have focused our studies on 5 of our largest families. These families were selected because we have not yet identified a gene causing their FDC and they provide the greatest chance of finding a disease-causing gene.

Using a research process called **linkage analysis**, we combine the clinical information (who is affected with cardiomyopathy and who is not) with information from the DNA. This permits us to search the DNA region where the family's disease gene is located (this region of the genome is called a locus).

Continued on page 2

INSIDE THIS ISSUE:

Clinical and Research Screening in the FDC Project (from page 1)

Using additional fine mapping (high resolution) techniques within this locus, we can then identify the causative mutation in a gene.

One strategy to improve our chances (our statistical power at linkage analysis) is to be sure that all of our assignments of affected and unaffected family members are up-to-date. Since it has been close to 10 years since these large families have been screened, we are beginning to plan research rescreening events.

While we do not hope that anyone in any of these families will have new onset of disease, identifying these individuals could give us the breakthrough needed to finally identify a disease gene in the family. Also important to the family members, early signs of cardiomyopathy may be silent and undetected without screening. Our screening process can identify these signs, thereby providing participants important health information as early medical intervention may prevent progression.

Clinical and Research Screening: Frequently Asked Questions

What is the difference between clinical screening and research screening/rescreening? Clinical screening for FDC is recommended for all individuals who have a first degree relative (parents, siblings, offspring) with IDC. The tests involved are clinically available and can be ordered by your doctor. Research screening, on the other hand, is an effort lead by our group to discover the genetic basis of FDC. Research screening is important as it can provide information about the onset, development, and progression of FDC. It can also improve our understanding of the clinical presentation of the condition (and its causative gene) in a given family. Both clinical screening and research screening involve obtaining a medical history, physical examination, an electrocardiogram (ECG), and an echocardiogram. However, because the main goal of the FDC Project Group is to investigate the genetic basis of FDC, the FDC screening project also includes a blood draw.

Why is it important to perform clinical screening? IDC/FDC can often be detected through clinical screening before a person feels any symptoms. Moreover, it is impossible to predict the age of onset of disease. Clinical screening can help your doctor to make decisions about preventive treatment and follow-up.

What can ECGs and echocardiograms tell about FDC? ECGs and echocardiograms are used for both clinical screening and research screening. ECGs measure the heart's rate and rhythm by recording its electrical activity. This test also provides information about the size of the heart chambers, as well as damage to the heart tissue. The echocardiogram (echo) uses sound waves to produce a moving picture of the heart, which provides information about the size of the heart, as well as its pumping function, structure, and the direction and velocity with which blood travels across heart chambers. These tests can help to diagnose IDC/FDC in a person that is suspected to have this condition. ECGs and echos can also detect abnormalities that can occur in the absence of disease symptoms, such as increased ventricular size or abnormal pumping activity (low ejection fraction).

Why do you need to obtain a blood sample for research screening? The blood samples obtained for our research screening consist of 2-4 tubes, totaling about 2-4 tablespoons. The main goal of this blood draw is to extract the DNA for linkage analysis. As explained on page 1, in linkage analysis we compare the DNA of affected versus unaffected family members. What we expect to find are shared portions of DNA among individuals with FDC that are not present among individuals without FDC. This information is most useful when we analyze it alongside the clinical information obtained during a screening trip. Because we can tell the DNA location (on a chromosome) that is shared among relatives, we can "zoom in" to these specific spots to hopefully find a gene that, when changed, causes FDC.

Why do you need large families to conduct research screening? Large families are usually more likely to provide significant information (statistical power at linkage analysis) when we compare medical and genetic information from affected and unaffected individuals. Screening small families has its advantages as well, and we would ideally screen all participant families ourselves. However, the number of

Continued on page 3

Frequently Asked Questions
(from page 2)

screening trips that our group can perform is limited. Because all cardiovascular medical information is valuable to our research, we continually ask for updates and authorization to obtain cardiac medical records from all participants.

I was screened and my results were normal. Should I be screened again? Absolutely. Normal screening results (clinical or research) do not rule out the possibility of developing FDC later on.

I was screened and my results were abnormal. Should I be screened again? Yes. Abnormal screening results (clinical or research) should be followed up by your doctor to determine the type of follow up care that must be established. If we are planning a research screening trip with your family, we would appreciate meeting you again to update your records, regardless of the results of your previous screening. As mentioned previously, by keeping our data current, we maximize our chances of finding a gene mutation in your family.

How frequently is rescreening recommended? It is recommended that asymptomatic individuals who have a first degree relative with IDC or FDC are clinically screened every 3-5 years, or sooner if symptoms develop. If you have new onset of any cardiovascular symptoms, we recommend that you see your doctor to discuss your family history and screening recommendations. This information applies to all individuals with FDC, regardless of their family's size or participation in the screening portion of our study.

What if my family is not part of the research screening portion of the FDC study? We appreciate and encourage updates from all participants. Regardless of whether or not your family has been part of our large family screening efforts, if you would like to share new information about your family history, please let us know so that our files remain current. Please contact us to request a medical record release form, which we can use to request copies from your doctor. This communication drives our research forward, and we continue to benefit from regular contact with all of our enrolled families, both large and small.

The FDC Project Welcomes Two New Members

The FDC Project started 2008 with the addition of two new members to its team. **Jimena Dagua**, Nurse Specialist, and **Yves Baptiste**, Clinical Research Specialist, will be helping plan the screening trips while ensuring that the FDC Project runs smoothly.

Prior to joining the FDC Project, Jimena, who has a Bachelors degree in nursing and clinical nursing experience, worked as a safety and surveillance clinician. She also completed certifications in critical care pediatrics nursing as well as training in instructional design/delivery. Her roles in the FDC Project consist of enrolling families, clinical support, and addressing operational issues.

Yves, who is a certified medical assistant, joins the FDC team with over 14 years of experience performing ECG's, blood draws, patient vitals, and medical office administration. Her roles in the FDC Project consist of performing blood draws, processing participant records, processing the FDC newsletter, and assisting with screenings.

We are delighted to welcome Jimena and Yves as FDC Project team members. They will enhance the clinical activities of the FDC group, to the benefit of our participant families. We look forward to working with them, as we continue our FDC research quest!

We Want to Hear From You!

What have your interactions with the FDC Project Group members been like? How has FDC affected your family? What kind of a screening experience did you have? We are especially looking for things to put in our next newsletter. Submissions may be published anonymously at your request. If you have contributions of any kind (i.e. questions, stories, comments or suggestions), please contact us!

- Toll free: 877-800-3430
- Website: http://www.fdc.to and send an email from the "Contact Us" page
- Mail: The FDC Project Group, Cardiovascular Division, P.O. Box 019132, C-205, Miami, FL, 33101

FDC BULLETIN BOARD

CALL US AT OUR TOLL FREE NUMBER: 877-800-3430

MEDICAL FOLLOW-UP

If anyone in your family is newly diagnosed with heart problems, please let us know. Also, if you or anyone in your family has had heart tests performed, either for follow-up or for the first time, regardless of results, we would be interested in receiving copies. Please contact us and we will send you a medical record release form. If we have sent you medical record release form(s), please send us the completed form(s) as soon as possible.

EMAIL US THROUGH THE "Contact Us" PAGE ON OUR WEBSITE: WWW.FDC.TO

ADD ME TO THE MAILING LIST

If you are not currently a participant in our study, but would like to receive our newsletter, please contact us with your name and address, and we will be pleased to add you to our mailing list.

CONTACT INFORMATION UPDATES

If you have moved and/or have an email address we can contact you at, please call or email us so we can get in touch with you for any follow-up and continue to send you our newsletter.

FDC BEAT Newsletter

FDC BEAT is a publication of the Familial Dilated Cardiomyopathy Project in the Cardiovascular Division at the University of Miami, Miller School of Medicine in Miami, FL. The newsletter is not copyrighted and readers are welcome to photocopy its content to share with family members and health care professionals. We welcome your feedback.

The FDC Project Group
Cardiovascular Division
P.O. Box 019132, C-205
Miami, FL, 33101

303706

ADDRESS SERVICE REQUESTED

TO: