# Lupus Report

NORTHWESTERN UNIVERSITY
RAMSEY-GOLDMAN RESEARCH TEAM
2014-2015 ISSUE

INSIDE THIS ISSUE:



## Lupus Master Class

Dr. Mary Mahieu, a rheumatology fellow here at Northwestern and part of our lupus research team, was selected as part of a group of 100 lupus researchers at a by-invitation-only North American Lupus 2014 conference in Quebec, Canada. The group spent three days focused on ways to accelerate lupus research.

Supported in part by LRI and a number of pharma partners, the meeting combined formal presentations with discussion and one-on-one interaction to identify problems and promote collaborative solutions to improve treatments and outcomes for lupus patients.

In addition to the formal program, 10 young scientists (including Dr. Mahieu (pictured, far left) were selected to participate in a "Master Class" with preeminent lupus thought leaders to help the participants shape their research ideas and

*Continues on Page 7*

**Thank you for supporting our ongoing lupus research at Northwestern University. Due to your help, we are learning more about lupus everyday.**

# New to the Chicago Lupus Database?

If you have recently been enrolled in CLD (Chicago Lupus Database), you will have the opportunity to participate in a number of exciting studies. What to expect during your clinic visit:

When you come to your rheumatology appointment, one of our study coordinators from Dr.Ramsey-Goldman's lupus research group will, with your permission, discuss research studies that you are eligible for and ask whether you are interested in participating.

## Recent Studies

### Profile

Since 1999 through a partnership with the University of Alabama and lupus centers around the world, we have been engaged in research to examine genetic and environmental risk factors for organ damage in people with lupus. We are pleased to report that we will continue to collect data for this study for three additional years. This will allow us to enroll new lupus patients and to collect more data on people who have already been enrolled. If you are already enrolled in this study, we may contact you about future involvement with this study. Study participation involves three annual visits that include a blood draw, urinalysis, and physical exam.

### SABLE

SABLE is a research study examining disease activity in patients with SLE who are treated with or without BENLYSTA. Participation will consist of a total of 11 visits, scheduled six months apart, during which time a physical exam and a few short questionnaires are completed.

# SOLVABLE Update

**Two new articles examining heart health and lupus were recently published using data from the SOLVABLE study.**

## Lupus and Heart Health

Mary Mahieu's article, ***Alpha-chlorofatty acid and coronary artery or aorta calcium scores in women with and without systemic lupus erythematosus***, examines premature cardiovascular disease and its relationship lupus patients. Women with SLE ages 35-44 are 50 times more like to have a heart attack than healthy control subjects. Investigations now focus on finding risk factors that influence the speed of cardiovascular disease development in patients with SLE.

One way to measure a risk factor for cardiovascular disease is by looking at the hardening of the arteries. This is caused by atherosclerotic plaques in the arteries. In this study, an enzyme called myeloperoxidase (MPO), known to be abundant in atherosclerotic plaques, was measured to see its association with heart disease.

The results showed important relationships between the enzyme, SLE, and coronary artery calcium and aorta calcium scores that may help future investigations into cardiovascular disease. The enzyme levels were higher in women with than without SLE. This is likely due to the effects of lupus flares on the patients. Even when comparing SLE patients and healthy control subjects with similar levels of aorta calcium, the SLE patients still had higher levels of

*Continues on page 5*

## Coronary Artery Calcification and Atherosclerosis progression

In Apinya Lertratanakul's article, ***Factors in the Progression of Subclinical Atherosclerosis in Women with Systemic Lupus Erythematosus,*** patients with SLE were shown to have a higher risk of cardiovascular disease at a much earlier age than the general population. SLE itself has been shown to be a risk factor in hardening of the arteries, known as atherosclerosis. The associated risk of cardiovascular disease has prompted the study of early atherosclerosis in the SLE population, as measured with imaging studies such as carotid ultrasound and CT scans.

Signs of atherosclerosis include higher aorta calcium scores and coronary artery calcification. These have been shown to be more common in SLE patients when compared with healthy controls the same age and gender. Coronary artery calcium has also been shown to occur at a younger age in the SLE population, when compared with healthy controls.

SLE patients appear to have more coronary calcium when compared with the general population, however the underlying cause of this is not clear.

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## New Arrivals!

**Congratulations to our staff members on their recent additions!**

**Danielle Lerner,** Rheumatology Research Coordinator, gave birth to twin girls, Hannah Pearl and Natalie Alice on July 23, 2014.

**Elizabeth Randall Harsha-Strong,** research coordinator recently gave birth to baby girl Emily Annabelle , born September 9, 2014.

# New to the Lupus Research Team

Mary Mahieu, MD.; is a first year Rheumatology Fellow at Northwestern and plans to pursue a career in academic medicine with an emphasis on clinical research. During college, she spent three years working in a biophysics lab investigating molecular signaling mechanisms that promote bone growth. During her Internal Medicine Residency at Northwestern, she worked on a project evaluating a potential novel blood marker for cardiovascular disease in patients with lupus using SOLVABLE data. She will continue to work with Dr. Ramsey-Goldman during her fellowship. Her research will focus on external influences on quality of life measures in patients with lupus, as well as potential blood markers for patient reported outcomes in areas such as fatigue and physical function.

*Continued from page 3*

the MPO enzyme. Meanwhile, the enzyme levels were similar between women with and without SLE who had coronary artery calcium present. This may one day be able to be used to detect early hardening of the arteries before its development can be detected by CT scans, and could play a role in predicting disease progression.

Our finding that SLE is associated with coronary artery calcium is consistent with previous studies that have shown increased cardiovascular disease among SLE patients. The SLE women in our study had higher rates of coronary artery calcium than women without SLE, even though the SLE patients are younger on average.

Future studies that could help us learn more could include in a larger sample of patients, following women who were recently diagnosed with SLE, and studying them over a longer period of time. Through studies such as these, we hope that it will help us learn even more about the association between lupus and heart disease, and methods we can use to help prevent it.


- **Eat a variety, as well as a colorful array of vegetables and fruits.**
- **Choose whole grains over processed foods. They contain fiber that can help lower LDL (bad cholesterol)**
- **Select nonfat and low-fat milk and foods**
- **Choose lean meats, fish and other protein foods low in fat.**
- **Watch sodium intake, limit adding salt at table and watch for hidden salt in processed food or while dining out.**
- **Be selective when choosing fats;**
  - **Choose unsaturated fats over saturated fats**
  - **Limit saturated fat, which are primarily found in animal sources but also in palm and kernel oil.**
  - **Limit trans fats, found in processed foods and fried foods.**
- **Incorporate regular physical activity- 30 minutes of moderate exercise on most days of the week.**

*Continued from page 3*

Older age and longer disease length were associated with carotid plaque increases in an early study, and in another study, traditional risk factors such as higher LDL levels (bad cholesterol), current smoking status, and SLE-related factors were associated with higher amounts of carotid plaque.

There are very few studies that have investigated risk factors in the increase of coronary artery calcium, and none that have explored risk factors for aorta calcium increase in those with SLE. We investigated traditional and SLE-related risk factors in the increase of artery calcium in women with SLE compared with a healthy control population. We tested to see if the amount of coronary calcium increased faster in women with lupus compared to the healthy controls, and if there would be different risk factors between the two groups. This is the first study to explore levels of

aorta calcium in women with SLE.

At the initial visit, SLE patients had higher coronary artery calcium than did controls, despite their younger age. In addition, the proportion of SLE patients with higher scores at follow-up visits compared with healthy controls was significantly higher, with about a 77% greater likelihood of coronary artery calcium increases. This suggests that there are factors related to having SLE that create a greater risk of higher aortic calcification levels.

Higher levels of both coronary artery calcium and aorta calcium have different risk factors in women with SLE, even after controlling for traditional cardiovascular risk factors. The findings show that the effects of the lupus itself and the damage lupus flares can do to the body create this risk of artery calcification.

In the pursuit of identifying not only those SLE patients specifically at risk for early and aggressive cardiovascular events, but also modifiable risk factors to prevent the atherosclerosis seen in SLE, many investigations into early atherosclerosis have been done. While the general population can follow conventional risk factor modification in order to prevent heart disease, such as changes in diet and health habits, it is not likely to be enough for the SLE population. Therefore more aggressive prevention of disease flares and disease damage may be important in the prevention of cardiovascular disease in lupus.

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share their own experiences in science, emphasizing the importance of asking truly novel and creative research questions.

"LRI President and CEO Margaret Dowd comments, "Sponsoring this conference helps further our mission to advance the most innovative science and foster new creative talent in lupus."

Many of the field's leaders started with an LRI Novel Research grant. Their discoveries laid the foundation for us to now integrate every stage of lupus research from fundamental through clinical study to focus on improving treatment today and drive toward prevention and cure tomorrow."

Lupus 2014 was created by the organizers of The International Congress on Systemic Lupus Erythematosus, the only international meeting dedicated solely to lupus held every two years.

## Interested in donating?

To continue our work with lupus research, education, and patient care, your philanthropic support is welcome. If you would like to find out more about supporting Northwestern University Feinberg School of Medicine, please reach out to:

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## WEBSITE UPDATE

**Check out our newly updated website to learn more about our current research studies, recent news and publications in the Lupus Research Program at Northwestern.**

**Visit us at lupus.northwestern.edu**

## NUgene

NUgene is a clinical research project currently being conducted at NMH and NMFF. The goal of this project is to collect and store genetic samples (DNA) along with associated healthcare information to form a gene bank. This large bank of samples, currently at 9,600 and growing, is available to researchers who are working to identify genetic contributions to human disease. This allows the researchers to more easily obtain many samples at one time, facilitating genetic research so it can more quickly impact healthcare in the future. All samples and information are de-identified before distribution for research. Participants in this study have the opportunity to provide Dr. Ramsey-Goldman with access to the information collected from participants through NUgene for research purposes. This will allow her to do additional research in the future on the role that genes play in lupus.

For more information, visit the NUgene website: http://www.nugene.org or call (312) 695-0700

IRB STU00010003 "NUgene: Gene-Disease Associations and Treatment Outcomes

We hope you have enjoyed the latest issue of the ***Lupus Report***. If you have any questions, comments, or suggestions for topics you would like us to cover in the next newsletter, please send us your feedback.

Want more information about our research? Visit **www.lupus.northwestern.edu** for more information or email solvable@northwestern.edu.

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