

The Arthritis Society and SPARCC *Canadian Researchers in the Global Network*

In an international study of the genetics of AS involving 10 countries, SPARCC researchers played a central role in defining that the gene for Interleukin-1 is a risk factor for ankylosing spondylitis in different populations worldwide. Scientists genotyped nine variants in the Interleukin-1 gene cluster in AS cases and controls from 10 countries, and then tested association of variants with AS. Dr. Robert Inman commented "International collaboration is critical to study genetics of such a complex disorders as ankylosing spondylitis. Such collaborations can provide sufficiently large sample sizes to produce robust findings often not achieved in smaller studies. Canadian researchers are playing a critical role in this global network" (Ann Rheum Dis. 2008;67:1305-9.)

SPARCC Researchers Announce New Gene Discovery in AS

It had been recognized that there was important relationship between ankylosing spondylitis, psoriasis, and inflammatory bowel disease. In a remarkable example of basic science clarifying clinical relationships, SPARCC researchers have discovered that a single gene plays an important role as a risk factor for all three diseases. The gene encodes the receptor for a chemical mediator of inflammation called IL-23. The SPARCC team examined cohorts of AS patients from rheumatic disease centers across Canada, making this a distinctively Canadian discovery. Dr. Proton Rahman comments, "This is a genetic finding which will have direct impact on Canadians with spondylitis, as well as those with psoriasis and Crohn's disease. First, it opens the door for earlier diagnosis of these conditions since measuring levels of interleukin-23 might reveal provide clues to inflammation in the joints, skin. Secondly, it suggests that new treatments which target interleukin-23 might be effective in all three diseases. This is an example of a discovery in genetics which opens the door to new therapies. (Arthritis Rheum. 2008;58: 1020-5.)

SPARCC Cracks a Mystery in Ankylosing Spondylitis

The genes which lie behind ankylosing spondylitis have been amongst the highest priorities of researchers studying this disease around the world. HLA-B27 has been for 35 years to be a key factor. Canadian researchers funded by the Arthritis Society have achieved a major advance in defining the genes which cause ankylosing spondylitis. This study examined 3 groups of patients drawn from centers across Canada. Dr. Walter Maksymowych comments: "This represents the most significant genetic discovery in AS since B27 was discovered in 1973. It is particularly gratifying that this is a distinctively Canadian achievement, with patients drawn from across Canada". SPARCC researchers have made genetic studies a high priority since this will greatly advance knowledge about the cause of ankylosing spondylitis. This has important implications for earlier diagnosis, and for the development of new more effective treatments for this chronic arthritis. (Arthritis Rheum. 2009;60:1317-23.)

SPARCC Research finds a new protein to measure activity of disease in ankylosing spondylitis

With chronic forms of arthritis like ankylosing spondylitis, doctors have had great difficulty in being certain whether change in symptoms reflected a change the underlying disease. It has also proved difficult to develop new tests which might help guide the timing of treatment more accurately. A recent study by SPARCC researchers used the approach of asking which genes are turned on when the disease is active. This approach has led to the discovery of a protein in

the blood called LIGHT, which closely parallels the activity of the disease. Dr. Inman comments: "This is the kind of study which can directly impact patient care. This is a powerful new tool which will greatly assist the physician to determine how, and when, to alter the treatment of the patient." SPARCC is a cross-Canada network of doctors and scientists dedicated to improving the quality of life of Canadians with spondylitis and related forms of arthritis. SPARCC is funded by The Arthritis Society. (Ann Rheum Dis. 2008; Dec 22. [Epub])

How can physicians best measure inflammation in spondylitis?

Patients with ankylosing spondylitis frequently suffer painful tendonitis, which can interrupt normal activities and lead to chronic pain and fatigue. There has no agreement amongst physicians on how to measure this tendonitis, so that appropriate treatment can be started. A recent study by the Spondyloarthritis Research Consortium of Canada (SPARCC) has made significant progress in this area by publishing a new method to test for tendonitis. Dr. Walter Makysymowych comments: "In addition to providing physicians with a method to systematically to test for tendonitis, this study has discovered that patients with active tendonitis have more severe ankylosing spondylitis. This can lead to more timely institution of effective treatments." SPARCC, funded by The Arthritis Society, is a nation-wide network of physicians and researchers dedicated to improving the quality of life for Canadians with arthritis. (Ann Rheum Dis 2009;68:948-53)

There's more to life than moving joints:

The challenge of (measuring social role participation in ankylosing spondylitis.

How does one really gauge the impact that living with arthritis can have on person's daily life. SPARCC researchers, funded by The Arthritis Society, set out to answer that question. Symptoms and functional limitations are common in AS; however, the impact the spondylitis on the ability to fully participate in activities has not been widely evaluated. People with AS suggest that participation in social roles (e.g. employment, leisure, and relationships with others) is a critical outcome that is often adversely affected by the of their arthritis. Dr. Aileen Davis comments: "It is important to consider which roles are important to individuals and to evaluate their satisfaction with participating in a role at the times and in the ways they would like". Participation as an outcome measure takes on increased importance in diseases such as AS where, in the absence of a cure, the benefits of interventions often arise from improvements to patients' quality of life. The Arthritis Society, in funding patient-oriented research through SPARCC, is making a difference for Canadians living with arthritis (Nat Clin Pract Rheumatol. 2009;5:46-51).

Spondylitis Starting in Childhood

An important issue in caring for children with ankylosing spondylitis is what the course of disease lies ahead for the patient. This is a common dilemma for parents as well as for physicians treating such patients. A new study by SPARCC researchers has provided important new information on what may lie for children with spondylitis. Dr. Inman comments: This study has shed new light on the pattern of arthritis as these children grow up. This will be valuable for improving the care of these patients since it offers more information on what the longterm course of the illness will be." SPARCC is a national research network of doctors and researchers dedicated to improving the quality of life of Canadians- of all ages who are living with the pain and disability of ankylosing spondylitis. SPARCC is funded by The Arthritis Society. (Ann Rheum Dis. 2008; Sep 9. [Epub])

SPARCC Researchers Announce Major New Finding in the Genetic Basis of Psoriatic Arthritis

The arthritis which occurs in people with psoriasis has been recognized to be a serious form of joint disease, which can lead to chronic pain and disability. A recent study by the SPARCC research network has discovered that a gene associated with ankylosing spondylitis also has a strong association with psoriatic arthritis. Dr. Proton Rahman comments: "This is a major advance in psoriatic arthritis for two reasons. First, it provides important new understanding of the mechanisms underlying the inflammation in the skin and the joints. Secondly, it suggests that treatments directed at this gene (the IL-23 receptor) may be very effective in treating this form of arthritis. It is an example of genetic research which is directly applicable to improving the care of patients with psoriatic arthritis." The SPARCC Network is funded by The Arthritis Society. *J Rheumatol.* 2009;36:137-40}.

Defining Optimal Treatments (or Psoriatic Arthritis)

The effectiveness of methotrexate in the treatment of psoriatic arthritis has not been defined. A recent study from SPARCC investigators has shed new light on this important question. Results showed that there has been a recent trend towards methotrexate to be used earlier and at higher doses. Dr. Dafna Gladman comments: "This study has provided insights into changing practices in the treatment of psoriatic arthritis. More importantly, we have new evidence that methotrexate can lead to better clinical outcomes and can protect against damage to the joints." (*J Rheumatol* 2008;35:469-71.) The Arthritis Society funds the Spondyloarthritis Research Consortium of Canada, a national network of physicians and researchers dedicated to improving the quality of life for Canadians with psoriatic arthritis and ankylosing spondylitis.

Psoriatic Arthritis has Important Connections to Other Diseases

In a major study of patients with psoriatic arthritis, SPARCC researchers have discovered that cardiovascular disease occurs with greater frequency in this patient than in the general public. Dr. Dafna Gladman comments: "This is a very important finding. Physicians now have to be alert to other modifiable factors which might contribute to increased risk of heart disease. It also suggests that the importance of controlling arthritis in these patients lies not only in improving the symptoms of joint disease, but that there may be important secondary benefits such as reducing the risk of heart disease. We now know that both are important reasons for timely diagnosis and effective treatment for patients with arthritis. These have been the guiding principles of SPARCC." SPARCC is a cross-Canada network of physicians and researchers funded by The Arthritis Society. (*Ann Rheum Dis.* 2008 Aug 12. [Epub])

Fatigue in Psoriatic Arthritis is an Important Factor for Patients

SPARCC researchers have published the results of an investigation into the relationship between fatigue and psychosocial factors in psoriatic arthritis. Using a combination of questionnaires and laboratory tests, the research team discovered that fatigue is a common symptom amongst these patients. The fatigue has strong connections with pain, physical functional disability, and psychological distress. Dr. Dafna Gladman comments: "This is an important discovery which will aid physicians caring for patients with psoriatic arthritis, since fatigue has a major impact on the quality of life for these patients. This study also highlights the great potential of patient-oriented research which examines both the psychological as well as the physical aspects of living with arthritis. Such studies are beginning to make a real difference for our patients." SPARCC is a multidisciplinary research network across Canada which seeks to improve the quality of life for Canadians with arthritis. SPARCC is funded by

The Arthritis Society. (Ann Rheum Dis. 2008; Oct 17. [Epub])

Can You Catch Arthritis Like You Catch a Cold?

In 2005, 592 individuals in Ontario experienced an episode of food poisoning, after consuming food products contaminated with Salmonella. SPARCC investigators have just announced a major study into arthritis being triggered by this infection. In the study, one of the largest of its kind ever performed, the research team worked closely with the provincial health department and identified 53 individuals who developed arthritis after this episode of food poisoning, or a dysenteric outbreak. This provided important new information on the role of infection in the development of arthritis (J Rheumatol. 2008;35:1599-602.). The SPARCC investigators then discovered that one particular gene (toll-like receptor 2) was associated with this type of arthritis. Dr. Inman comments: "There has long been a suspicion about a role for infection as the cause of arthritis. With an outbreak of infection such as this, the opportunity arose to define what the interaction of genetics and infection might be which sets the stage for arthritis. This discovery has major implications for studying arthritis in populations exposed to common infectious diseases. It also suggests that new forms of treatment could be developed which are directed toward the interaction of the bacteria and this gene." SPARCC is a research consortium funded by The Arthritis Society and is dedicated to improving the lives of Canadians living with arthritis. (Arthritis Rheum. 2008;58:3436-8.)

The Arthritis Society and First Nations

There has been a longstanding impression that ankylosing spondylitis occurs more frequently in First Nations populations than for other Canadians, but there have been few studies into this question. SPARCC has announced a new pilot study examining the prevalence of ankylosing spondylitis in the First Nations peoples of Northern British Columbia: Dr. Kevin Kean comments: "The Arthritis Society's funding of this study, through SPARCC, will provide us with new information on how commonly spondylitis occurs in this population. It will also serve to provide a framework to define unmet needs, both in terms earlier diagnosis and timely treatment". SPARCC, a research consortium funded by the Arthritis Society, is working with physicians and researchers to improve the quality of life for all Canadians living with the burden of arthritis.

Ankylosing Spondylitis in Children

Ankylosing spondylitis typically begins in young adulthood, but in many instances the disease starts in the childhood years. A pilot study has been undertaken by SPARCC to evaluate children with this form of arthritis. Dr. Shirley Tse comments: "It is very important to develop new methods of measuring the activity of arthritis in this group of children, and our study will be developing such tools. This will directly impact the care provided to these children, since it will provide for pediatric rheumatologists a systematic method of evaluating the patients". SPARCC is network of pediatric and adult rheumatologists, and researchers from several disciplines funded by The Arthritis Society. Its goal is to improve the lives of Canadians of all ages who are living with the daily challenges of chronic arthritis.