

The Evolution of Pediatric Rheumatology in Canada

By Ronald M. Laxer, MDCM, FRCPC

(with thanks to Dr. Ciaran Duffy, Dr. Alan Rosenberg and Michele Gibbon)

Evolution: a process of continuous change from a lower, simpler, or worse to a higher, more complex, or better state (Merriam Webster Dictionary, www.merriam-webster.com/dictionary/evolution)

The Canadian pediatric rheumatology community is a small but mighty one with national and international influence that certainly “punches way above its weight.” The last decade has been a time of significant growth with the expansion of many academic programs and a strong community presence in several provinces, notably British Columbia and Ontario. Of the 15 medical schools, out of 17 in total in Canada, 12 have at least two pediatric rheumatologists on faculty, and while as pointed out by Dr. Janet Ellsworth this is still insufficient, it is a great improvement from a decade ago when only four centres (Vancouver, Toronto, Montreal and Halifax) had two or more faculty members. This expansion has not only enhanced the visibility of the specialty but allowed more exposure to medical students and pediatric residents, such that many have chosen to pursue pediatric rheumatology as a subspecialty. In fact, since 2006, 31 have graduated from the three Royal College-approved training programs (i.e., the University of British Columbia, the University of Toronto and McGill University).

In 2005, a meeting was held in Vancouver for all Canadian pediatric rheumatologists. As a result of this two-day conference, the Canadian Alliance of Pediatric Rheumatology Investigators (CAPRI) was launched. Soon after, a group led by Drs. Ciaran Duffy, Kiem Oen, Lori



Tucker and Rae Yeung secured funding to support the Research in Arthritis in Canadian Children Emphasizing Outcomes (ReACCh-Out) study, CAPRI's first project; see article by Dr. Lori Tucker on p.11. This multicentre, national longitudinal cohort study tracked 1,500 patients with newly diagnosed juvenile idiopathic arthritis (JIA) to determine what factors influenced outcomes. The group has been and continues to be remarkably productive, with six publications thus far in the highest-impact rheumatology journals.

The data continue to be analyzed and are a rich and highly sought-after source of material for ongoing clinical studies. It also demonstrated the ability of our community to come together and the power of collaboration.

In addition to the ReACCh-Out cohort, other large, collaborative multicentre studies have been organized and have led to important observations and contributions to the literature. The Biologically Based Outcome Predictors (BBOP) in JIA, led by Dr. Alan Rosenberg in Saskatoon, includes 11 centres. This study investigates the interaction of genetic, lifestyle and environmental factors early in the course of JIA to help predict outcomes and ultimately improve management. There is a large research team with representation from a wide variety of areas, including rehabilitation, nursing, nutritional sciences, cell biology and toxicology, among others. Four manuscripts have

been published and data analysis is ongoing. The Linking Exercise Activity and Pathophysiology (LEAP) study, led by Dr. Ciaran Duffy and Dr. Lori Tucker, is also a prospective longitudinal cohort study that focuses on physical activity in patients with JIA. Patients have been enrolled at 12 pediatric academic health science centres throughout Canada. This study differs from the ReACCh-Out Study in that there is far greater inclusion of investigators from outside of the field of pediatric rheumatology, with a number of kinesiologists as well as longitudinal study data analysts. The study commenced in 2011 and to date almost 700 patients have been enrolled. The dataset includes demographic data; detailed clinical information, including medication use as well as laboratory data; physician and patient/parent global assessments; functional and quality of life questionnaires; and a questionnaire on physical activity. A subset of LEAP patients also provides biosamples at certain study visits, accelerometry data, detailed bone structural analysis and muscle-function testing. This study will ultimately acquire highly specialized and quite detailed information on the association between JIA and physical activity and the effects of physical activity on JIA, with a particular emphasis on effects on bone and muscle, as well as effects on measured biomarkers. Additionally, linkage to longitudinal biosamples offers the chance to explore novel biomarkers in the context of disease change over time. A number of abstracts emanating from this study have been presented at scientific meetings and a number of early descriptive papers are in process. Most recently, CAPRI has undertaken the devel-

opment of a national registry that will track all Canadian children with JIA.

After several years of intense discussion and debate, the “Section of Pediatric Rheumatology” was formed in 2006 as the first section of the CRA. This section evolved from its predecessor, the Canadian Pediatric Rheumatology Association (CPRA), formed in 1986, with the recognition that by joining forces, both the CRA and CPRA would be stronger entities. The section serves to strengthen the voice of pediatric rheumatology across Canada and areas of focus include advocacy, education and human-resource planning; see article by Dr. Janet Ellsworth on p.15. Over the last few years the group has advocated for the availability of liquid naproxen and triamcinolone hexacetonide, as both had become unavailable for our patients.

With our increased numbers and strong collaborative spirit, pediatric rheumatology in Canada will continue to evolve. There is a cadre of young, energetic, well-trained, talented Canadian pediatric rheumatologists who will no doubt continue to produce high-quality research and attract the very best trainees to our specialty. The potential is enormous, and the future looks very bright indeed.

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Exercise is Medicine: Keeping Kids with Arthritis Active *(continued from page 7)*

Exercise prescription in JIA will evolve with advances in research, and Canadian rheumatologists are leading the way. The Linking Exercise, Physical Activity and Pathophysiology in Childhood Arthritis (LEAP) study, a longitudinal observational cohort at 12 pediatric rheumatology centres across Canada (n = 709), aims to explore the relationships between JIA, physical activity, and bone and muscle development (www.leapjia.com).

As physicians, we can promote the power of exercise. I encourage you to take the PA challenge by following these three simple steps: 1) ask your patients/their family

about PA at every consultation; 2) write an exercise prescription; 3) follow up to chart progress, solve problems and set goals. We can also lead by example and integrate PA and exercise into our daily lives.

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