PROBIOTICS: THERAPEUTIC POTENTIAL FOR PEOPLE WITH SPINAL CORD INJURY (SCI)

Kingsley C Anukam
Greetings!

Winter is here already; where did summer and fall go? The 4th Annual Rick Hansen Wheels in Motion event held in June at the Wolseley Barracks was another great success. Over $30,000 was raised to support Quality of Life Solutions and SCI Research in London. Equally important was the opportunity to celebrate accomplishments in wheelchair sports, show support for the wheelchair community, and raise the profile of needs and solutions for people with SCI. Congratulations to all who participated and helped with the organization. A special thank you to Major DeVries, Pamela Franklin and the troops of ASU London for being such gracious hosts and doing so much to ensure the success of the day. Elsewhere in this newsletter we identify how the quality of life funds will be allocated. The research funds will be used to support study trainees in SCI research at Parkwood and Robarts.

The Parkwood SCI research group are now well established in the new Aging, Rehabilitation & Geriatric Care Research Centre. We can now be found in Rooms B3035 and B3039 in what used to be 3B South. We are also working collaboratively with the clinical team to ensure that space is available for the trials that are underway and contemplated for the future. The Research Centre officially opened on Sept 20, 2006.

New initiatives that are underway include clinical trials of probiotics, FES-assisted bicycling and hydrophilic catheters. For more information on the FES-assisted cycling study, contact Dalton at (519) 685-4292 ext 42957. More information about the other trials is contained herein. The CIHR-funded grant on physical activity profiles in people with SCI living in the community is progressing well and we hope you will all support this initiative (see page 7).

Both the Parkwood based research group, and the investigators at Robarts have been busy publishing and presenting their findings at conferences and details of this activity can be found in this newsletter.

Happy Holidays to all,

Keith and Dalton

Staff Profile

Lorna Froste has recently joined the SCI Research Group as a Clinical Coordinator. She is a Registered Nurse with experience in clinical trials and academic research. Lorna’s research and nursing positions have included working with varied health care and research teams including industry, and her nursing career has even taken her to Moose Factory where she worked as a Nursing Coordinator. Her personal interests include music and art history, spending time with her family and traveling to Northern Ontario in the summer.

Congratulations!

- Andrew Davies, John ‘Kip’ Kramer and Negin Ashki three graduate students studying SCI within the Neuroscience Program at UWO have been awarded Ontario Graduate Student Scholarships.
- Taylor Close is the first recipient of the Siskinds Studentship in SCI Research.

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On September 27th, we launched a new Living Well program with a Wednesday night dinner event. Here is a bit of background:

Over the summer we had cancelled the regular weekly event so that we could work on a new and improved version of our Living Well program. The idea we came up with, was to hold evening sessions every other month (approximately) and provide FREE dinner.

The reasons for the change in frequency and style was to:

1) Make the sessions more special and to devote more time to organizing interesting topics and speakers.
2) To attract the inpatients on the unit a little more easily by not conflicting with their daily therapy schedules and serving their dinner as part of the session (a nice change from “hospital” food).
3) Create a better atmosphere where people who are more recently injured and their families feel comfortable mixing with those of you from the community (and for those of you from the community, giving you a reason to come and visit with your fellow SCI friends).

For our first session we had an Italian theme with various pastas catered from Marshall’s Pasta Shack. The first topic was given by Dr. Keith Hayes and Colin Kittmer where Dr. Hayes spoke on some research updates on Stem Cells and Fampridine and Colin talked about how people with SCI have gotten involved in working with researchers. This launch event was a huge success, and we hope this is a sign of things to come.

For details on the next event, see the adjacent column:

COME FOR DINNER!

Wed, December 6th
6:00 - 8:00 p.m.
WCW Auditorium (Parkwood)

Guest Speakers:
Nadia Andretta-Whelan (TRS) & SCI Peers commenting on their experiences

“Accessing Your Community & Beyond”

- Planning Considerations
- Accessibility Features
- Travel Possibilities

Please RSVP your attendance by Dec 1st to:
Heather Askes (519) 685-4292 ext 42940
heather.askes@sjhc.london.on.ca

For more information about these sessions, or to be added to the email list or notified of upcoming sessions, contact Heather (as above).
London's
Rick Hansen Wheels in Motion Event
2006

Local Sponsors

Top Individual Pledges
Reg Fickling - $1550

Top Team Pledges
1st
Team FAST (Colin Kittmer) - $8334
2nd
Makino Family - $3596
3rd
Life Rolls On
(Parkwood Nurses) - $2531

Skills Challenge
Winning Teams

1st
Parkwood Oilers
2nd
Army #2
3rd
Team FAST

Raffle Ticket Winners

1st
Negin Ashki
2 tickets from London to Vancouver - Sunwing Vacations (Approx. Value $1000)

2nd
Corporal Mark Segato
Gift Card - Home Depot (Value $100)
3rd
Reuben Smith
Gift Certificate - Jack Astor’s (Value $25)

Quality of Life Projects
A number of submissions were received for the Quality of Life grants from RHWIM-06. These included applications from various wheelchair sports organizations, requests for support for an individual with special wheelchair needs, and request on behalf of an individual with special accommodation needs not covered by other sources. The committee recommended supporting each of the applications, priority given to the individuals in need.
Community-University Research Alliance (CURA) Grant Promotes Physical Activity in SCI

Dr. Kathleen Martin-Ginis (McMaster University) together with Drs. Hayes & Wolfe and colleagues from across Canada have recently received funding for a Team Development Grant as part of their successful CURA grant “Letter of Intent.” Our CURA “synergizes the efforts of world-class researchers, with the front-line experience of SCI knowledge mobilization experts, service groups, organizations and consumers, to develop and implement new knowledge and interventions that will increase physical activity in the SCI community.”

Goals and Objectives:
Our goal is to enhance physical activity participation in the SCI community by:
1. Developing theory- and evidence-based interventions that motivate and teach people how to initiate and maintain a physically active lifestyle.
2. Mobilizing these programs in the SCI community.
3. Evaluating the effects of these programs.

Because our objectives intertwine both research and knowledge mobilization activities, our research plan is structured around the five key principles of knowledge mobilization. These five principles form our five CURA research themes: (1) knowing our audience, (2) creating SCI-specific informational and behavioural intervention materials, (3) identifying credible messengers to deliver the materials, (4) developing effective knowledge mobilization methods, and (5) evaluating the effectiveness of our knowledge mobilization methods.

Our knowledge mobilization plan involves disseminating materials directly to the SCI community through the well-established support programs and networks of our partner organizations. Our partners represent the major National and Provincial service organizations for people with SCI (Canadian Paraplegic Association, Rick Hansen Man in Motion Foundation), non-government organizations for people with SCI (Ontario Neurotrauma Foundation), and the primary sports and recreational organizations for people with disabilities (Active Living Alliance for Canadians with a Disability, Canadian Paralympic Committee). Knowledge mobilization will also occur at the professional and academic levels, through educational workshops for SCI health-care professionals and through our partner organization, the Ontario Rehabilitation Research Advisory Network.

More Participants Needed for Important ONTARIO-WIDE STUDY

SHAPE – the Study of Health and Physical Activity at the University of Western Ontario/Parkwood Hospital, is looking for 150 people in Southwestern Ontario to participate in a Research Study to:

1) Examine the physical activity patterns among individuals with spinal cord injury (SCI)
2) Identify the predictors of physical activity
3) Establish a relationship between physical activity and the risk of secondary health complications

This study involves 3 1-hour long interviews over an 18 month period. The long-term goal of this research is to develop better exercise prescriptions for people with SCI.

TO PARTICIPATE:

* You must be 18 year of age or older
AND
* Have sustained a traumatic spinal cord injury at least 1 year ago
AND
* Use a mobility aid (i.e. wheelchair, cane, walker) as your primary mode of mobility outside of the home
AND
* Have no chronic memory impairments
** You DO NOT have to be physically active to participate

FOR MORE INFORMATION CONTACT:
Dr. Dalton Wolfe @ (519) 685-4292 ext 42957 dwolfe@uwo.ca.
The recent increased interest in probiotics “live microorganism which, when administered in adequate amounts, confer a health benefit on the host,” has not yet translated into specific products for hospitalized or spinal cord injured (SCI) patients in Canada. Europeans have more access to clinically proven products, such as Proviva, a Lactobacillus plantarum 299V containing milk drink which when given with oat fibres, has been shown to reduce infections in seriously ill surgical patients. For applications to SCI patients, several options could either be tested now or applied in the future. There are good data on the anti-inflammatory effects of probiotic strains, such as L. rhamnosus GR-1 and the 8 strain product VSL#3. Inflammatory processes affect SCI patients in the immediate post-injury period as a healing reaction, as well as later on in rehabilitation where it may interfere with signaling along the cord. Consideration should be given to applying probiotics conjointly with standard treatment at these two stages. Asymptomatic bacteriuria and urinary tract infections are very common (>70%) in SCI patients, invariably induced through the use of catheters.

A recent survey on the frequency of urinary tract infections by Dr. G. Woodbury (sponsored by Coloplast) and assisted by the Canadian Paraplegic Association is an eye-opener on the severity and magnitude. One in five individuals have 5 or more urinary tract infections per year and one in three have refrained from social activities because of a UTI (Spinal Cord Injury Research Newsletter February 2006 Volume 5(1):5).

The use of oral probiotics, such as L. rhamnosus GR-1 and L. reuteri RC-14 may help reduce pathogen load in women through natural rectal to vaginal passage, but for men, mucosal immune effects are likely the only mechanism where this might provide benefits. The vesical instillation of an avirulent E. coli has shown promise in US studies, but the availability of this strain for Canadian patients is some ways off. The disturbing correlation between bacterial colonization of the bladder and increased incidence of bladder carcinoma and premature death, perhaps through carcinogen production and chronic inflammation, makes it imperative that new approaches to care be developed. Studies in Japan have shown that regular intake of probiotic Yakult containing the L. casei Shirota strain, reduces recurrence of bladder cancer. The standard approach in Canada of using antibiotics is often ineffective against recalcitrant biofilms, and is limited by drug resistance, multiple species of pathogens, and side effects. Cranberry juice may help to some extent to increase the time to next infection, but its effectiveness is quite limited and more studies are needed. In London Ontario, the probiotic yogurt Activia® is now available in the hospital setting. While this is designed to prevent constipation, it potentially has other benefits, and its use at least illustrates progress in terms of looking at probiotic alternatives for patient care. If probiotics can help to prevent infection, modulate inflammatory processes and improve the quality of life of neurotrauma patients, they will provide caregivers with another option that has no side effects. For now, probiotics are worthy of being tested in clinical trials.

We are asking SCI patients diagnosed with UTI in the community to participate voluntarily in a forthcoming study using beneficial Lactobacilli (good bacteria) along with prescribe antibiotics in the treatment of urinary tract infections. The probiotic Lactobacillus was developed by Dr. Gregor Reid (LHRI), an internationally acclaimed microbiologist. The study is intended to decrease episodes of UTI and increase the time for the next infection. The study is being piloted by Dr. Gregor Reid, Dr. Keith Hayes, Lorna Froste (Research Coordinator) and Dr. Kingsley Anukam (Investigator). Please contact Lorna (lorna.froste@sjhc.london.on.ca) if you would like to know more about the study.

Welcome To Canada!

Dr. Kingsley Anukam, a research post-doctoral fellow in the Department of Microbiology & Immunology at the University of Western Ontario, has recently arrived from Nigeria and is a new member of the SCI research team. Dr. Anukam and Dr. Gregor Reid (LHRI) have published clinical trial studies with the probiotic Lactobacillus strains. In addition he has received training in clinical trials from the Canadian vision 2000 program, and is currently working with Drs Reid and Hayes on an Ontario Neurotrauma Foundation funded study of probiotics for urinary tract infection in people with SCI.
New products for SCI bladder management

Though relatively new to Canada, Coloplast will be celebrating its 50th Anniversary next year. Over these years, Coloplast has become a leader in the development of innovative products for bladder management following a spinal cord injury. With the recent acquisition of the Mentor urology and continence care line, Coloplast now has a greater product assortment to offer the SCI community. Our goal is to provide products and services contributing to a better quality of life.

One of the innovative products includes SpeediCath, a hydrophilic catheter. SpeediCath is a ready-to-use intermittent catheter which requires no gel and minimizes the friction of the catheterization which reduces the risk of complications such as urinary tract infections. There is also a full line of external catheters, Foley catheters and drainage bags to meet all specific needs. As products can have a significant role in determining one’s quality of life, Coloplast Canada offers a free sampling program. This allows an individual to discover the security and comfort to make a wise purchase decision. Free samples can be ordered toll-free at 1-866-293-6349.

With our growing success in Canada, Coloplast has increasingly supported the SCI community by sponsoring the Canadian Paraplegic Association, Rick Hansen Wheels in Motion and wheelchair sports associations. For more information visit www.coloplast.ca or call 1-866-293-6349.

(Article Submitted by Coloplast)

REPORT

By: Dr. Lynne Weaver

Some long-lasting efforts at Robarts finally came to fruition in the past few months in the form of published papers. Two papers by Feng Bao and Sunil John on a small molecule (the tripeptide feG) that protects the injured spinal cord were published and have attracted the interest of a company who hopes to commercialize this molecule for clinical treatment of spinal cord injury. Dave Ditor and Feng Bao published a paper concerning our anti-inflammatory treatment that we have studied for the past three years and showed that it can be given six hours after a spinal cord injury and still have good protective effects. Jennifer Fleming’s three-year study of the human inflammatory response after spinal cord injury was published in Brain this October. That was the culmination of a long and very complicated analysis of 30 cases of human spinal cord injury. We have almost completed the preclinical studies of another new and exciting anti-inflammatory treatment.

We hope to tell you more about this treatment in the next newsletter.

The Spinal Cord Injury Team at Robarts has a new student member, Laura Gonzalez-Lara. She is working on her PhD with Dr. Paula Foster on imaging of the injured rat spinal cord. Her particular project involves applying high-resolution cellular MRI technologies to follow bone marrow cells after transplantation in a spinal cord injury model and to monitor the cord lesion and the cellular responses to the treatment. Laura has a MSc.E. degree from the University of Michigan where she studied Biomedical Engineering. Her primary focus there was in Rehabilitation Engineering, which allowed her to provide services to people with spinal cord injury in a clinical setting. She is the mother of an 8-month-old baby girl named Ana and a 3-year-old named Sarah.

The Team also has a very young new member. Julia Gris, daughter of Denis and Katya Gris arrived November 14. We are all proud team members and congratulate Denis and Katya.
SCIRE:
The Spinal Cord Injury Rehabilitation Evidence-Based Review

We are pleased to introduce the first edition of the SCI Rehabilitation Evidence-Based Review (SCIRE for short). This project involved the creation of a website http://www.icord.org/scire, a CD and a book that summarizes the evidence that exists in the literature for various interventions employed in SCI rehabilitation. An undertaking as large as this takes the combined efforts of many people and this project is no exception. Several members of the research and clinical teams at Parkwood Hospital and the Lawson Health Research Institute here in London, combined with colleagues at the GF Strong Rehabilitation Centre and the University of British Columbia in Vancouver, BC have been working together over the past 1.5 years to produce this work. It is hoped that this will be the first of many editions to come as we work to improve and update SCIRE.

Local core group participants in SCIRE include Jo-Anne Aubut, Sandra Connolly, Chris Fraser, Jane Hsieh, Stephanie Muir-Derbyshire, Steve Orenczuk, Mary Ann Regan and Dalton Wolfe, all under the leadership of Dr. Robert Teasell. Leaders on the BC side were Janice Eng, Bill Miller and Andrea Townson.

Below is an abstract about SCIRE that will be presented at the upcoming GTA Best Practices Day in Toronto this February.

Summary: SCIRE, a systematic review of rehabilitation interventions for spinal cord injury (SCI), will make evidence-based knowledge available to consumers, health care professionals and policy makers.

Objectives: 1) To identify priority areas in SCI rehabilitation for which research evidence is strong and should be transferred rapidly and effectively to improve SCI care and 2) to identify areas where evidence for effectiveness is lacking.

Demonstration Overview: Relevant articles were identified from various bibliographic databases from 1980-2006. Methodological quality of interventional studies was evaluated by 2 independent reviewers using the Downs and Black checklist and PEDRO (RCTs only).

To date, greater than 10,000 papers have been identified with 1002 of these meeting criteria for data extraction. Findings were grouped by topic, tabulated and summarized. A modified version of Sacketts’ levels of evidence was used to provide a bottom line recommendation for each topic.

For example, evidence for the effects of functional electrical stimulation (FES) cycling on the prevention or treatment of bone loss after SCI is limited. Nine pre-post uncontrolled studies were identified. Five of these studies found no change in areal bone mineral density (aBMD). Four studies reported a positive effect on bone parameters (improvements of 10-18% in aBMD) using a protocol of 3 sessions/week for at least 6 months.

Conclusions: An information gap separates many stakeholders involved in SCI rehabilitation from relevant research findings. The SCIRE project aims to close that gap and make knowledge translation a reality for consumers, health care professionals and policy makers.

In addition to a CD, findings are available at http://www.icord.org/scire.

Support: This project is supported by the Rick Hansen Man in Motion Foundation Research Fund and the Ontario Neurotrauma Foundation.

Research Day Award

Congratulations to Andrew Davies on being awarded the “Top Podium Presentation” for his presentation entitled “Preliminary Examination of Cerebrospinal Fluid Cytokine Concentrations in Individuals with Longstanding Spinal Cord Injury” at the recent Aging, Rehabilitation and Geriatric Care Research Day at Parkwood. Great Job.
**RECENT PUBLICATIONS**


