

ISCoS

The International
Spinal Cord Society



56th
ISCoS

Annual
Scientific
Meeting

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Dublin Ireland

Workshop 1: October 24, 2017 (09:00 - 10:30)

Acute and surgical management of vertebral fracture in spinal cord injury: What other disciplines in the team should know?

Dr Harvinder Chhabra¹, **Dr Michael Haak²**, **Dr Rainer Abel³**, **Dr Francois Theron⁴**, **Dr Ashok Pedaballe Reddy¹**

¹Indian Spinal Injuries Centre, ²Geisinger Health System,, ³Klinik für Querschnittgelähmte, ⁴Tshwane Rehabilitation Centre

Abstract: It is a well established fact that comprehensive SCI management involves multidisciplinary team management. Most often the decision making regarding any intervention procedure is taken by the doctor and the rest of the team follows the instructions without any reasoning. But, the non surgeons spend more time with the patient than the doctor. So, it would be prudent if the non surgeons are cognizant with decision making principles like rationale, timing of surgery, various techniques, postoperative care including when to mobilize, role of brace and outcomes of surgery. This symposium also designed to update members on various trials, their impact on surgical practice and also provide interactive questions /discussion on these topics. This would have a positive impact on patient outcome.

The principles of acute and surgical management would be discussed threadbare by a team of surgeons of Spine Trauma Study Group of ISCoS using illustrative cases of each type of fracture of Cervical (as per Allen's classification) and Thoracolumbar spine (as per Denis classification). Technical requirements: 1 LCD projector capable of handling input from laptop computers will be needed. The contributing participants and their role is as below:

1. Introduction to workshop (05 minutes): Michael Haak
2. Cervical Spine Injuries (10 minutes)
 - Flexion distraction injury
 - Michael Haak
3. Cervical Spine Injuries (10 minutes)
 - Flexion compression injury
 - Rainer Abel
4. Cervical Spine Injuries (10 minutes)
 - Extension compression injury
 - Francois Theron
5. Cervical Spine Injuries (10 minutes)
 - Extension distraction injury
 - Ashok Pedaballe Reddy
6. Thoracolumbar injuries (10 minutes)
Fracture dislocation
 - Michael Haak
7. Burst Fracture (10 minutes)
 - Rainer Abel
8. Chance fracture (10 minutes)
 - Francois Theron
9. Compression Fracture (10 minutes)
 - Ashok Pedaballe Reddy
10. Carry home message (05 minutes)

Workshop 3: October 24, 2017 (09:00 - 10:30)

Electronic Medical Record: Data Collection and Reporting – including International SCI Data Sets and Standards for Neurological Classification of SCI

Professor Fin Biering-Sørensen¹, MD Gianna Maria Rodriguez², PT, Clinical Informatics Stacey Cohen³

¹*Clinic for Spinal Cord Injuries, Rigshospitalet*, ²*Physical Medicine and Rehabilitation, University of Michigan Hospital System*, ³*Mount Sinai Health System*

Learning objectives include:

- 1) possibilities for systematic data collection with the use of Electronic Medical Records (EMRs)
- 2) examples on how to include the International Spinal Cord injury (SCI) Data Sets and the International Standards for Neurological Classification of SCI in an EMR
- 3) examples on how to use the structured data inherent in the EMR and the International SCI Data Sets for e.g. research

Synopsis:

The course will introduce the possibilities an electronic medical record (EMR) include in general and specifically when working with spinal cord injury (SCI). This is exemplified with the EMR Epic covering half of the US and half of the Danish population, including several SCI centers. The course will show how International SCI Data Sets and the International Standards for Neurological Classification of SCI can be included in an EMR. Particular emphasize is given to how to use the structured data both inherent in the EMR and those included in the International SCI Data Sets for research, exporting to external registries etc. The various tools available for reporting of the structured data will be presented including their specific advantages and usability when managing the data.

Program:

Electronic Medical Record: Introduction to Epic system and the data-structure – Stacey Cohen (15 mins)

Use of Epic in SCI rehabilitation in a US center – Gianna Maria Rodriguez (15 mins)

Use of Epic in SCI rehabilitation in East Denmark, including the International SCI Data Sets and the International Standards for Neurological Classification of SCI – Fin Biering-Sørensen (15 mins)

How to report and use the data collected - Gianna Maria Rodriguez, Stacey Cohen, and Fin Biering-Sørensen (30 mins)

Structured data:

- 1) Epic's inherent structured data
- 2) Smartforms – custom structured data (International SCI Data Sets)
- 3) Flowsheets – including SCIMIII, WISCI, TUG, 10 meter test, 6 mins. test, etc.

Tools for reporting:

- 1) Reporting workbench / Registries
- 2) Radar
- 3) Slicer dicer

4) Special and more complex tools

Export of data:

- 1) Spreadsheet / Excel
- 2) Interfacing with external registries

General discussion (15 mins)

Course Chair: Fin Biering-Sørensen

Workshop 4: October 24, 2017 (09:00 - 10:30)

Debates on neurogenic bladder dysfunction. Interaction with other organs' and systems' dysfunction.

MD, PhD, SFEBPRM Christina-Anastasia Rapiđi¹, MD, DSci, PhD, FISCOS, FEBU Jean Jacques Wyndaele², MD, FEBU, FECSM Charalampos Konstantinidis³, MD, PhD, FRCPC Andrei Krassioukov⁴
¹*Physical & Rehabilitation Medicine Department, General Hospital "G.Gennimatas"*, ²*University of Antwerp*,
³*Urology and Neuro-urology Unit, National Rehabilitation Center*, ⁴*Physical Medicine and Rehabilitation Department, GF Strong Rehabilitation Centre, University of British Columbia*

Spinal cord injury (SCI) is associated with significant dysfunction not only of the somatic nervous system but the autonomic nervous system (ANS) too. Following SCI, the brain fails to control efficiently the ANS. This dysfunction mainly result from the loss of control over spinal sympathetic and parasympathetic circuits while major parasympathetic nervous system control via the X cranial nerve is still preserved. The unbalanced and uncontrolled function of ANS results in disorders such as heart rate disorders, hypotension, autonomic dysreflexia, sweating and thermoregulation disorders, bronchopulmonary system disorders, neurogenic bladder, bowel, and sexual dysfunction. Bladder and bowel function have high influence on quality of life and they are rated among the highest priorities among individuals with SCI.

The aim of this workshop is to shed light on bladder dysfunction post SCI and the interaction with other systems of the organism and adjacent organs. Sensory-motor, cardiovascular, genitourinary, gastrointestinal, and sexual function will be analysed in parallel. How the management of neurogenic voiding disorder is affected by the motor disorders of the person with SCI. Impaired mobility and spasticity interacting with bladder management and dysfunction. Hand dexterity and upper extremities function interacting with bladder management. Neurogenic bladder dysfunction interacting with neighboring organs (bowel, uterus) & the cardiovascular system. The special aspects and interactions of neurogenic bladder and sexual dysfunction will be discussed.

Topics that will be addressed in 90min:

Introduction (C-A.Rapidi)

Neurogenic bladder dysfunction interacting with mobility dysfunction:
(C-A. Rapiđi)

Neurogenic bladder dysfunction interacting with neighboring organs:

Bladder and bowel dysfunction interactions (JJ. Wyndaele)

Bladder and sexual dysfunction interactions (Ch. Konstantinidis)

Neurogenic bladder dysfunction interacting with cardiovascular system:
(A. Krassioukov)

Workshop 5: October 24, 2017 (09:00 - 10:30)

An emerging service delivery model in the follow-up process and beyond: a comparison of different approaches to Telehealth support

Miss Nishu Tyagi¹, Dr Sajeesh Kumar², Dr Chitra Kataria³, **Dr Adesola C. Odole**⁴, **Dr. Lisette Van Gemert**⁵

¹Telehealth Unit, Indian Spinal Injuries Centre, ² Institute for Health Outcomes and Policy, ³Rehabilitation Department, Indian Spinal Injuries Centre, ⁴Department of Physiotherapy, University of Ibadan, ⁵University of Twente

This workshop will allow those interested in telehealth, tele-rehabilitation, telehealth standards, telepractice and use of electronic systems for health information to explore ideas, challenges, user friendly telehealth tools and the ways to embed telehealth as standard practice when appropriate. All the invited speakers will focus on the relevance, feasibility, assessments standards and the possibilities for improving quality of care and wellbeing through telehealth innovations. Continuous supervised care is of great importance and new approaches are needed to improve the health care options for patients. Hence, this session will explore how telehealth can inspire improvements in service delivery, quality of care and outcomes for people with spinal cord injury. Each of these five presentations (10 minutes each) will bear particular reference to how these organisations provide telehealth support; how they tailor support to the needs of persons with SCI or any specific conditions they have targeted; finally, how these organisations evaluate the impact of these services provided in terms of assessment and data set. The panel discussion of 30 minutes would identify the strategies, differences amongst developed and emerging countries and inspire the future projects, activities and the needs of the telehealth service delivery in SCI. The audience will be encouraged to participate in the panel discussion.

Learning Objectives:

- i. Telehealth support is more than just a telephonic/video consultation.
- ii. Examples of telehealth solutions in different countries.
- iii. Low cost innovations & its impact on telehealth service delivery in rural areas
- iv. How digital literacy is important and required for the patients/caregivers/professionals.
- v. Telehealth as an outreach service delivery model in developing nations.

Program:

Moderator: Nishu Tyagi

Chairperson: Nan Liu

S. No Topic Duration

1 Telerehabilitation as an outreach service delivery model: A systematic review & practical implementation in India 12 min Nishu Tyagi

Telehealth Unit

Indian Spinal Injuries Centre, India

Speaker

2 Perspectives of Physiotherapists in Nigeria about telephysiotherapy 12 min Adesola C. Odole
University of Ibadan, Nigeria Speaker

3 The use of App-based Telehealth for the follow-up of sacral sparing and functional capacity in individuals with spinal cord injury: the further attempt from China 12 min Nan Liu

Associate Professor and Deputy Director

Department of Rehabilitation Medicine

Peking University Third Hospital

Beijing, China

Speaker

4. Telesci an update from the US and vision for the future 12 min Marcalee Alexander

Physician, Spinal Cord Injury Medicine

Birmingham, Alabama Speaker

5. Telerehabilitation: The evolution, integration and value of telerehabilitation across business and service models 12 min Tammy Richmond

Go Care, USA Speaker

(Skype)

6. Panel Discussion: Need of Telehealth in current Clinical practice? 30 min All speakers

Workshop 6: October 24, 2017 (11:40 - 13:10)

Why (and how to) report rehabilitation activities in clinical trials?

Professor Karim Fouad³, Professor Marcel Post⁴, Professor Edelle Field-Fote², Professor Kim Anderson¹

¹University Of Miami, ²Shepherd Center, ³University of Alberta, ⁴University Medical Center Utrecht

There is growing evidence that exercise/physical therapy/rehabilitation in animal models of spinal cord injury (SCI) influences neuroprotection, regeneration, plasticity, spinal and cortical organization, and neuronal properties (Fouad and Tetzlaff, 2012; Sandrow-Feinberg and Houle, 2015). The literature on human SCI clinical trials indicates interventions that incorporate rehabilitation have the strongest evidence for efficacy (Gomes-Osman et al, 2016). As such, it is important to capture rehabilitation activities, as they may modify or confound outcomes of pharmacologic, cellular, or device interventions being tested in clinical trials. Accordingly, there is a need to accurately document the content and dosing of these rehabilitation activities. Two taxonomies for documenting SCI rehabilitation exist: 1) the SCI-Interventions Classification System (SCI-ICS; van Langeveld et al, 2008), and 2) the SCIR rehab taxonomy (Whiteneck et al, 2009). An international working group used these taxonomies as the basis for development of an International SCI Rehabilitation Basic Data Set. This data set is intended to be a condensed taxonomy that can efficiently, and without undue burden, document rehabilitation therapies used in clinical trials. The data set is proposed to be part of the International SCI Data Sets; future efforts will focus on assessing the validity of the new data set.

In this workshop, participants will attain the following educational objectives:

1. Understand the scientific rationale for reporting rehabilitation activities in clinical trials.
2. Describe outcomes from selected animal studies and human clinical trials where exercise/rehabilitation has been a component of the intervention
3. Compare the SCI-ICS and SCIR rehab taxonomies, and review practical experience utilizing both in the clinical environment.
4. Describe the development and the components of the new basic dataset for physical and occupational therapies for use in clinical trials.

Audience participation will be encouraged throughout the workshop, and feedback will be incorporated into the dataset development.

Chair: Kimberly Anderson

Speakers:

1. Rationale for reporting rehabilitation activities in animal studies and clinical trials – Karim Fouad
2. Overview of the SCI-ICS – Marcel Post
3. Overview of the SCIR rehab taxonomy – Edelle Field-Fote
4. International SCI Rehabilitation Basic Dataset for use in clinical trials – Kimberly Anderson

Workshop 7: October 24, 2017 (11:40 - 13:10)

ISCoS Prevention Committee Symposium: Non Traumatic Spinal Cord Injury: Is prevention possible?

Dr Peter New¹, Dr Francois Theron², Dr Kamil Yazicioglu³, Dr Yannis Dionyssiotis⁴, Dr Harvinder Singh Chhabra⁵

¹Caulfield Hospital (Alfred Health), ²Tshwane Rehabilitation Centre, ³TAF Rehabilitation Center, ⁴European Interbalkan Medical Center, ⁵Indian Spinal Injuries Centre

Much of the focus on data collection with a view to prevention has been for Traumatic spinal cord injuries even though non traumatic spinal cord injuries (NTSCI) have a much higher incidence and prevalence. The ISCoS initiative on Global mapping of NTSCI summarizes the epidemiology of NTSCI. Global maps of NTSCI epidemiological outcomes are presented by WHO global regions and countries. It has been noted that a high rate of degenerative deformity of the spine (59%) was reported in Japan, high rates of tuberculosis were reported in parts of India, and high rates of tumours and degenerative conditions were reported in Western Europe and in Africa. Hence NTSCI has shown to have a regional variation. Prevention strategies against NTSCI can be designed regionally and based on further epidemiological studies.

The Prevention Committee of ISCoS is submitting this workshop proposal in order to focus attention on this important but often neglected topic. Prevention strategies specific to various aetiologies causing NTSCI will be discussed in the workshop. A panel will discuss the challenges in prevention of NTSCI and the audience will be directly involved with in the panel discussion though a moderator. The discussions will help to identify the differences in approach amongst various countries. The workshop will also help to create partnerships within ISCoS to facilitate development of strategies for primary and secondary prevention of NTSCI

Topic and speaker:

1. NTSCI due to various causes : Epidemiology, Causes, Presentation as well as early diagnosis, Prognosis and Prevention
 - a. Neoplastic NTSCI (12 min) :Peter New
 - b. Infectious NTSCI (12 min): Francois Theron
 - c. NTSCI of Degenerative aetiology (12 min) : Kamil YAZICIOGLU
 - d. NTSCI of Inflammatory and Vascular aetiology (12 min) : Yannis Dionyssiotis
2. Panel Discussion: Non Traumatic Spinal Cord Injury: Is prevention possible? (40 min): All speakers
3. Carry Home Message 2 min

Workshop 8: October 24, 2017 (11:40 - 13:10)

Barriers to Community Integration for Persons with SCI

Mr Shivjeet Raghav¹, Dr Nazirah Hassan², Dr Stanley Ducharme³, Ms Anne O'Loughlin⁴

¹Indian Spinal Injuries Centre, ²University of Malaya, ³Boston University Medical Centre, ⁴NRH

SCI is a debilitating illness that limits physical functioning of a person and causes an overall decline in health and quality of life. Rehabilitation after SCI aims at functional restoration for effective community inclusion and participation. Various factors that may affect the final outcome of community integration include psychological factors, injury related issues, quality of care, physical/environmental and attitudinal barriers, government policies and economical factors.

The workshop is aimed to facilitate discussion on specific dimensions associated with community integration after SCI. The cause for deficits in integration may be family's inability to support and handle the demands of care giving. The workshop will discuss the stress and psychological adjustments of the family and care givers. Special emphasis will be laid on the role of family to meet the demands of a child with SCI as it has long term implications for the child's normal developmental trajectory. Importance of primary and long term support from spinal centres/units towards achieving the goal would also be deliberated upon. Various aspects that predict successful community integration after SCI and how it translates to improved quality of life will also be discussed.

As the proposed workshop includes members from diverse backgrounds and regions, it will help to identify the similarities and differences of barriers across regions/countries. The workshop will present examples of setting projects for SCI communities for successful community integration in developing nations. Attendees will engage in discussions on means to facilitate community integration in each region.

Topic and Speaker:

- * Community integration: report from India - Shivjeet Raghav (10 minute)
- * University's role and support in SCI Community Integration Program - Nazirah Hassan (10 minute)
- * Understanding the Needs and Concerns of the Family - Stanley Ducharme (10 minute)
- * Systems approach to facilitating reintegration following Paediatric SCI - Anne O'Loughlin (10 minute)
- * Panel Discussion (50 minute):
 - Can we correlate CI with QoL?
 - Do barriers differ across regions?
 - Is removing environmental barrier enough for CI?
 - Is financial independence critical factor for CI?
 - Society awareness for disability issues: will it help in CI?

Workshop 9: October 24, 2017 (11:40 - 13:10)

Evaluation and decision-making in neurogenic bowel dysfunction

Dr Anton Emmanuel¹, Dr Klaus Krogh², Mr Bruno Gallo Santacruz³, Dr Stephen Kirshblum⁴

¹*UCLH & UCL*, ²*Aarhus University Hospital*, ³*Coloplast A/S*, ⁴*Kessler Institute for Rehabilitation*

Neurogenic bowel dysfunction (NBD) is a common problem in SCI patients. Despite having important consequences for patients' quality of life it's not always sufficiently recognized and prioritized by health care providers (HCPs).

This workshop will be divided into 4 key-note presentations to provide a holistic view to the problem and its evaluation, as well as present a novel tool to help clinicians in decision-making.

The first section will introduce and frame the problem, giving new insights on how patients live and cope with bowel problems. With data from a patient survey (n=316, of which 74 SCI) we will highlight the difficulties in accessing specialized care or the seldom discussed topic of self-treatment. We will also explore the likely link between bowel dysfunction and other frequent problems among SCI patients, such as urinary and psychosocial problems.

A second presentation will then discuss the assessment of these patients, focusing on the recently published ISCoS data set (ref1).

There is currently no simple tool to determine whether treatment is sufficient or insufficient. The reason for this non-systematic approach is in part related to the lack of standard monitoring and clear guidance when treatment is inadequate. This is especially a problem for a condition as individual in manifestation as NBD where clinicians and patients may have different perspectives on adequacy of response. Given the need of a tool that includes objective measures and patients' subjective perception, the third presentation will propose a newly developed tool - MENTOR (Monitoring Efficacy of Neurogenic bowel Treatment On Response) designed specifically for patients with NBD (Fig.1)

Finally, a fourth and last presentation will review the current treatment options for NBD and the existing proposed pathways.

Interactive discussion with the audience will be part of the workshop, specifically regarding this new tool; testing its validity and utility among participants by means of case vignettes where the audience uses a smartphone voting app.

Ref 1. Krogh K, Emmanuel A, Perrouin-Verbe B, Korsten MA, Mulcahey MJ, Biering-Sørensen F. *Spinal Cord*. 2017 Feb 14. doi: 10.1038/sc.2016.189.

Workshop 10: October 24, 2017 (11:40 - 13:10)

Management of pressure ulcers in Spinal Cord Injury patients

Mr Aheed Osman¹, Mr Srinivasa Chakravarty Budithi, Mr Naveen Kumar

¹*Midland Centre For Spinal Injuries, Oswestry*

Pressure ulcer is a significant cause of morbidity in spinal cord injured patients. Despite patient education regarding skin care and care arrangements in the community, it is not uncommon to see development of advanced, chronic pressure ulcers in these patients.

Managing pressure ulcers prove to be a significant burden in terms of prolonged in-patient hospital stay and related finances.

A multi-disciplinary approach is essential for holistic management of this complication and help the individual to achieve best possible outcome.

Negative Pressure Wound Therapy (NPWT) has shown promising results in helping the wounds to heal, combined with surgical debridement and judicious use of improved dressing materials developed in recent years.

The aim of this workshop is to present current best practice in the management of pressure ulcers in Spinal Cord Injured patients.

Topics to be covered:

1. Pathophysiology of pressure ulcers
2. Prevention of pressure ulcers in spinal cord injury patients
3. Management principles including surgical aspects
4. Recent advances in pressure ulcer management including regeneration.

Suitable audience:

Medical, nursing, therapists and Scientists

Workshop 11: October 24, 2017 (16:15 - 17:45)

Advancements in Implanted Electrical Stimulation Technology for Spinal Cord Injury

Mrs Anne Bryden^{1,2}, Dr. Dennis Bourbeau^{1,2,3}, Dr. Ronald Triolo^{1,3,4}

¹Case Western Reserve University, ²The Cleveland FES Center, ³The Louis Stokes Cleveland VA Medical Center, ⁴The Advanced Platform Technology Center

People with spinal cord injury (SCI) experience limitations in movement and other physical functions. The Cleveland FES Center and the Advanced Platform Technology Center have a history of restoring function for these individuals using implantable functional electrical stimulation (FES) devices. We have demonstrated that these implanted neuroprostheses can provide improved ability to perform numerous activities of daily living requiring postural stability combined with arm and hand function (such as eating and drinking, grooming, office tasks, reaching objects from an overhead shelf, returning to upright sitting from fully forward flexed postures, reaching forward bimanually, and bed mobility).

A major recent advance in neuroprosthetics has been the development of a modular implanted system that can be utilized to restore multiple functions to individuals. This system, the “networked neuroprosthesis” (NNP), is currently being used to restore grasp, reach, and seated postural control in people with tetraplegia. A key feature of this system is the internalization of both control and power sources, eliminating the need for the user to wear external components during functional use.

Future applications of NNP technology include management of neurogenic bladder and bowel in SCI, which remains a clinical challenge. Electrical stimulation interventions are being developed to restore lost function, and some approaches are now becoming feasible for clinical translation. Research in genital nerve stimulation, pelvic nerve stimulation, and pudendal nerve conduction block are three areas of particular interest that have potential for clinical impact.

This course is intended to provide an update on the latest clinical research for restoring upper extremity function, postural stability and bladder and bowel function using implanted electrical stimulation. We will specifically address the inclusion and exclusion criteria, evaluation and surgery planning process, surgical implantation, and post-operative outcomes assessment. The course will conclude with discussion of future applications and plans for translation of technology for broader access.

Identify the inclusion and exclusion criteria for implanted FES systems to restore grasp, reach and postural stability.

Identify FES approaches for neurogenic bladder and bowel being investigated in preclinical and clinical research.

Understand the clinical and functional outcomes that can be achieved using FES in people with tetraplegia.

Workshop 12: October 24, 2017 (16:15 - 17:45)

Comprehensive interprofessional management of spinal cord injury in infants and young children

Dr Lawrence Vogel^{1,2}, Dr Randal Betz³, Dr MJ Mulcahey^{4,5}, Dr Kathy Zebracki^{1,6,7}

¹*Shriners Hospital for Children*, ²*Rush Medical College*, ³*Institute for Spine and Scoliosis*, ⁴*Thomas Jefferson University*, ⁵*Shriners Hospital for Children*, ⁶*Northwestern University Feinberg School of Medicine*, ⁷*Rosalind Franklin University of Medicine and Science*

Format of proposed course: Four short lectures followed by two case presentations and general discussion.

Synopsis of course: The course will consist of five sections. First, a brief overview of pediatric spinal cord injury (SCI), including epidemiology as a function of age at injury, diagnostic assessment of infants and young children with an SCI, and unique medical complications and their management, will be reviewed. The second section will discuss unique orthopaedic considerations and complications of pediatric SCI. The third discussion will review innovative rehabilitation and habilitation of youth with SCI, based on practice-based evidence. Finally, the key psychosocial issues, including emotional functioning, social/sexuality issues and transition, for youth with SCI and their families will be highlighted. The course will conclude with two case presentations with workshop attendee participation in developing a treatment plan using practice-based evidence.

0000-0015 Introduction/ overview of pediatric SCI (Vogel)

0015-0030 Orthopaedic considerations and complications (Betz)

0030-0045 Rehabilitation/Habilitation (Mulcahey)

0045-0060 Psychosocial Issues (Zebracki)

0060-0090 Case presentations and discussion

Workshop 13: October 24, 2017 (16:15 - 17:45)

Sexual dysfunction and treatment options after spinal cord injury in males.

Professor Lique Coolen¹

¹*University Of Mississippi Medical Center*

Spinal cord injury (SCI) has devastating effects on a variety of systems, including urogenital and sexual functions. In particular, chronic SCI causes ejaculatory dysfunction in the majority of male patients. Recovery of this function is of great importance to patients, yet it remains understudied and satisfactory treatment options are currently not available. Ejaculation is a reflex mediated by a spinal ejaculation generator in the lumbosacral spinal cord. A principle component of this generator is a neuronal population located in spinal levels L3-4 and named for their projections to the thalamus (lumbar spinothalamic cells: LSt cells). This spinal ejaculation generator was initially described and delineated in male rats and has recently been demonstrated in human males. In the first part of the workshop, an overview of the spinal ejaculation generator and effects of SCI will be provided. First, recent analyses of the effects of SCI on ejaculatory dysfunction in male patients and the location of the spinal ejaculation generator in human spinal cord will be described. Next, an overview of the neurotransmitters and neuroanatomical interconnections of the spinal ejaculation generator will be discussed based on findings in male rats. In rat, LSt cells co-express the neuropeptides galanin, gastrin releasing peptide (GRP), enkephalin, and cholecystokinin. LSt cells integrate sensory inputs during sexual activity to coordinate autonomic and motor outputs required for ejaculation, via interspinal connections and the release of neuropeptides onto spinal target neurons. In the second part of the workshop, potential targets for treatment for effects of SCI on ejaculatory dysfunction will be discussed. It has recently been demonstrated that in rat, as in humans, SCI caused long term changes in the spinal ejaculation generator. Specifically, contusion injury ablated ejaculatory reflexes triggered by sensory stimulation, 6 weeks after injury. Potential treatments with neurotransmitters expressed in LSt cells will be presented. In addition, recent studies in rat have shown a partial recovery following treatment with an agonist for dopamine 3 receptors. Together, this workshop will provide a comprehensive overview of the current status of research on effects of SCI on ejaculatory function and discussion regarding potential targets for future drug development.

Workshop 14: October 24, 2017 (16:15 - 17:45)

ISCoS SCI Educational Initiatives

Lessons learnt and further development of strategies to increase quality and coverage of SCI education globally

Mr Stephen Muldoon¹, Prof Lisa Harvey², Dr Federico Montero³, Dr Ronald Reeves⁴

¹Livability, ²University of Sydney, ³National Rehabilitation Centre, ⁴Mayo Clinic

Workshop Proposal for ISCoS Conference
Dublin, October 2017

ISCoS - Educational Initiatives for SCI health professionals:
Lessons learnt and further development of strategies to increase the quality and coverage of SCI educational opportunities globally

Submitted by: Education Committee of the International Spinal Cord Society (ISCoS)
Contact person: Stephen Muldoon, Chairperson, ISCoS Education Committee
Email: smuldoon@livability.org.uk

Summary

This workshop will summarise the various educational initiatives of ISCoS whilst reflecting on the pros and cons of each initiative and their relevance as a model to increase the quality and coverage of global SCI education.

Target Audience

This workshop will be of relevance to those interested in

- The education of healthcare professionals working in SCI management .
- Establishment and enhancement of SCI educational strategies that can be rolled out in countries around the world.

Format

The workshop will include short presentations as well as opportunities for audience engagement. There will be discussion about the pros and cons of different educational strategies, as well as the barriers and facilitators for implementing and sustaining different strategies. The time allocated for discussion will focus on what can be learnt from the experiences of ISCoS and how we might continue to enhance SCI educational programmes and initiatives globally.

Outline

Aims and objectives of the ISCoS Education committee Stephen Muldoon 5 min

Online training modules (www.elearnSCI.org) - our experience 5 years on Stephen Muldoon 10 min

Massive Open Online Courses - a way to reach the masses and utilisation of www.elearnSCI.org

Dr Lisa Harvey 15 min

Language Localisation – Translation of www.elearnSCI.org - Latin American Perspective on relevance to cross regional SCI education Dr Federico Montero 15 min

SCI Workshops - what makes a good training workshop and utilisation of www.elearnsoci.org post workshop

Dr Ronald Reeves 15 min

Discussion 30 min

Total 90 min

Speakers

Mr Stephen Muldoon, Livability, UK

Professor Lisa Harvey, University of Sydney, Australia

Dr Federico Montero, National Rehabilitation Centre, Costa Rica

Dr Ronald Reeves, Mayo Clinic, USA

Workshop 15: October 24, 2017 (16:15 - 17:45)

A Prelude to Randomized Controlled Trials: Clinical Research Pilot Studies

Dr Kimberley Monden¹, Dr Susan Charlifue¹

¹*Craig Hospital*

Pilot studies represent a fundamental phase of the research process. The purpose of conducting a pilot study is to examine the feasibility of an approach that is intended to be used in a larger scale study. A pilot study can be used to evaluate the feasibility of recruitment, randomization, retention, assessment procedures, new methods, and implementation of novel interventions. Historically, pilot studies have received little or no attention in scientific research training leading to misconceptions, primarily that they are small single site studies. However, conducting pilot studies is crucial to informing researchers about methodological and practical challenges of implementing a full scale clinical trial. The purpose of this workshop is to provide practical information about conducting pilot studies in the field of spinal cord injury (SCI) research.

Learning objectives are to: (1) describe the purpose of conducting pilot research, (2) list at least three reasons why pilot studies are conducted, and (3) describe minimization techniques for randomizing participants in small studies. Dr. Monden will detail the specific purposes of pilot studies, which are to test the process, resources, management, and scientific basis of the planned randomized controlled trial (RCT). Dr. Monden will provide information on randomizing patients in small sample studies using minimization and how to analyze pilot study data. Dr. Charlifue will provide examples of successfully executed pilot studies in SCI research and provide practical guidance on how to publish a pilot study. Participants will be encouraged to share their ideas and experiences in conducting their own pilot studies or solicit feedback on research ideas that are well suited for pilot study.

Workshop 16: October 25, 2017 (10:50 - 12:20)

Journal update: Spinal Cord, and Spinal Cord Series and Cases

Professor Lisa Harvey¹, Professor Marcalee Alexander², Professor Marcel Post³, Professor John Steeves⁴

¹*University of Sydney*, ²*University of Alabama*, ³*Hoogstraat Rehabilitation*, ⁴*University of British Columbia*

Intended audience: Authors, reviewers and readers of Spinal Cord, and Spinal Cord Case and Series

Aim: To provide an overview of the Society' two journals, namely Spinal Cord, and Spinal Cord Case and Series.

Objectives: The objectives of this workshop are to:

1. outline the scope and mission of the two journals
2. introduce the new Editor-in-Chiefs, Associate Editors, Editorial Board Members and Editorial Office manager of the two journals
3. describe the types of papers which are publication priorities for the two journals
4. provide an update on the rates of submission, rejection and time to publication of the two journals
5. explain the screening process of all submitted papers including the automatic checks for plagiarism
6. outline the review process and how decisions are made about the types of papers that are accepted
7. discuss some of the common reasons papers are rejected
8. highlight some of the advantages of publishing with the two journals
9. provide a summary of the 5-year plan for each journal including transfer to new website and electronic paper management system
10. explain some of the policies that are being introduced to help minimise bias and improve the reporting and transparency of research
11. describe some of the initiatives that have been introduced to meet funders' and institutions' requirements that the results of research be freely available. This includes open access for all papers after one year, freedom to post papers on public databases after 6 months and ability to post a link anywhere on the web to your paper immediately after publication.
12. provide an opportunity for participants to give feedback and suggestions for the future development of the two journals

Format: This workshop will consist of short presentations followed by opportunities for questions and discussion.

Workshop 17: October 25, 2017 (10:50 - 12:20)

Repurposing Acute Therapeutics For Enhanced Recovery of Spinal cord Injury (RATER-SCI)

Dr John Kramer¹, Dr Catherine Jutzeler¹, Dr Catherine Mercier², Dr Dolor Soler³, Dr Armin Curt⁴, Dr Frank Bradke⁵

¹ICORD/University of British Columbia, ²Guttmann Institute, ³University of Laval, ⁴University Hospital Balgrist, ⁵German Center for Neurodegenerative Diseases

Profound sensorimotor deficits are the hallmark of damage in the central nervous system (CNS). Among the more difficult to manage are muscle paralysis and neuropathic pain. The combination of these deficits is particularly cruel: burning or dyesthesia in areas of the body that are otherwise numb and incapable of volitional movement. The burdens to the individual, caregivers, and European and Canadian societies are enormous.

From a clinical and research perspective, motor deficits and neuropathic pain are usually considered independent neurological conditions. The fundamental premise of the proposed workshop challenges this notion: we contend that pain and/or pain medications impact motor recovery and that motor deficits impact pain. Because of the complex relationship between movement and pain, interventions to manage pain might be repurposed to enhance motor outcomes and, vice versa, interventions intended to improve motor outcomes may relieve pain. The specific aims of the proposed workshop are to discuss: 1) pharmacological and non-pharmacological interventions used to manage neuropathic pain as means to increase recovery of muscle strength and 2) rehabilitation interventions targeting motor recovery that can be repurposed to relieve neuropathic pain. The primary pharmacological focus is anticonvulsants, a front-line treatment for neuropathic pain. Non-pharmacological approaches include transcranial direct current stimulation and locomotor training.

Coordinated by Dr. John Kramer at ICORD (International Collaboration on Repair Discoveries, University of British Columbia), the RATER-SCI (Repurposing Acute Therapeutics for Enhanced Recovery of SCI) consortium includes five leading spinal cord injury centres spanning two continents and four countries (Canada, Germany, and Spain plus an in-kind contribution from Switzerland). Experimental approaches incorporate statistical analysis of existing data resources (Drs. Curt and Kramer, Switzerland and Canada, respectively), work in rodent models (Dr. Bradke, Germany), and translational clinical investigations in humans (Drs. Mercier and Soler, Quebec, Canada and Spain, respectively).

Workshop 18: October 25, 2017 (10:50 - 12:20)

ISCoS-ISPRM-HI Collaborative Workshop - Supporting global disaster planning and response for SCI in low resource settings

Professor Jan Reinhardt, Professor Kathleen Martin Ginis, **Peter Skelton**, Mr Rogier Broeksteeg, **Mrs Jo Armstrong**, Dr Toni Williams, **Mr Eric Weerts**, Zi-qiang Han, Dr Karin Postma, Dr Kerstin Wahman, Professor James Middleton

Natural disasters most commonly occur in low-resource settings, where rehabilitation services in general, and spinal cord injury (SCI) services in particular, are often poorly developed. ISCoS with Handicap International (HI) UK have been leading the development of minimum standards for SCI specialized care teams, providing input through ISCoS affiliated societies and committees. These standards were reviewed by disaster and rehabilitation experts convened by the World Health Organization in March 2017. Mapping pre-existing capability for provision of services to people with SCI in countries considered at risk of natural disasters or conflict is a key component of mitigating the impact of a SOD, enabling emergency coordination and specialized care teams to effectively target their supportive services. Similarly, accurate, systematic collection, reporting and analysis of disaster data for SCI and rehabilitation is needed to support planning and resource allocation, victim management and outcome monitoring, and research over the disaster response continuum.

This workshop will discuss current activities and future planning for projects involving minimum standards, SCI specialized emergency medical teams, assessment and data collection, capacity mapping and preparedness. This forms part of the current memorandum and collaborative work plan between ISCoS ERC (Disaster Subcommittee) and Handicap International, as well as developing relationship with the International Society of Physical and Rehabilitation Medicine (ISPRM Committee on Rehabilitation Disaster Relief).

The workshop will comprise the following:

1. Overview of Trauma Coordination Mechanisms in Emergencies/Development of WHO 2016 Minimum Standards for Rehabilitation and the role of specialized care teams (25 minutes)
Speakers: Eric Weerts, Technical Referent Emergency and Rehabilitation, Handicap International; Jo Armstrong, Physiotherapist, National Spinal Injury Centre, Stoke Mandeville & Handicap International UK; and Pete Skelton, UKEMT Rehabilitation Project Manager, Handicap International
2. Development of a minimum standard for the assessment of function (20 minutes)
Speaker: Professor Jan D. Reinhardt, Institute for Disaster Relief and Reconstruction, Sichuan University-Hong Kong Polytechnic University, Sichuan, Chengdu, China.
3. Disaster preparedness in spinal cord injury (20 minutes)
Speaker: Associate Professor Ziqiang Han, International Program Director, Institute for Disaster Relief and Reconstruction, Sichuan University-Hong Kong Polytechnic University, Sichuan, Chengdu, China.
4. Interactive discussion, future planning and recommendations (25 minutes)

Workshop 19: October 25, 2017 (10:50 - 12:20)

Comparing different innovative peer led approaches that maximise life outcomes for people affected by spinal cord injury

Miss Lucy Robinson¹, Mr Andrew Dickinson², Mr John Hogberg³, Mr Kevin Schultes⁴

¹*NSIC, Stoke Mandeville Hospital*, ²*Back Up*, ³*RG Aktiv Rehabilitering*, ⁴*FGQ*

Following the previous successful workshops in Maastricht 2014 and The role of peer support in the rehabilitation process and beyond: a comparison of different approaches to peer support in Vienna in 2016, greater collaboration after these workshops has enabled peer led organisations to develop and improve their reach and impact of people affected by spinal cord injury across the world.

This workshop will summarise and compare three peer support case studies from international organisations that provide peer support for people who are hard to reach with spinal cord injury (SCI). Peer support is recognised as an important part of the rehabilitation process. This session will explore the different hard to reach groups (such as family members, people who are aging with their SCI) and the different peer led approaches that have achieved improved life outcomes for people affected by SCI. Three presentations (20 minutes each) will bear particular reference to how these organisations provide peer support; how they tailor support to the needs of persons with SCI and finally, how these organisations evaluate the impact of the services provided. A structured panel discussion will follow about the ideas presented.

The audience will be encouraged to ask questions and engage in the issues discussed. The ideas and discussions elicited during the workshop will inform and inspire future projects and activities.

Workshop 20: October 25, 2017 (10:50 - 12:20)

Multidisciplinary Approach To The Management of Spasticity in Spinal Cord Injury

Professor Belgin Erhan^{1,2}, Professor, MD Murat Hanci³, M.D., Ph.D., Professor Claes Hultling⁴, Professor, FRCS Ed, FRCP Wagih S El Masri⁵

¹*GOP Taksim Training and Research Hospital PMR Clinic, ²Istanbul Aydin University, Faculty of Health Sciences,*

³*Istanbul University, Cerrahpasa Medical Faculty, Department of Neurosurgery, ⁴Karolinska Institutet, Spinalis SCI Unit, ⁵Keele University*

Spasticity is a common complication among spinal cord injury patients.

The management of spasticity includes nonpharmacologic, pharmacologic and surgical interventions.

Unfortunately there is no a gold standart prescription for the management of the spasticity in SCI.

The treatment plan should be case specific and talioered.

The treatment goals are also important. They should be realistic and achievable. Not only releasing the spastic muscle tone but improving the quality of life, function, decreasing pain etc are also important.

Recently intrathecal medications and local injections became more popular than the oral medications.

In this workshop we aim to discuss and teach;

-the characteristics of spinal spasticity and a brief look to the pathophysiology (Prof WM)

-effects of spasticity on quality of life and activities of daily living of the SCI patients (Ass Prof CH)

-When to give and whom to give oral medications and which medication for which patient? What is new? (Ass Prof CH)

-Is Botulinum toxin-A injection a good alternative for the treatment of spasticity in SCI patients?

Which techniques can be used? The details of ultrasound technique (Prof BE)

-When intrathecal medication is indicated and what are the advantages and disadvantages? What is new? (Prof MH)

Workshop 21: October 26, 2017 (10:55 - 12:25)

Important Considerations for Moving Spinal Cord Injury Clinical Trials Forward: a SCOPE Perspective

Professor Keith Tansey¹, Linda Jones², Professor James Guest³, Professor Mary Jane Mulcahey⁴

¹Methodist Rehabilitation Center and SCOPE, ²Neilsen Foundation and SCOPE, ³Miami Project to Cure Paralysis and SCOPE, ⁴Thomas Jefferson University and SCOPE

Clinical trials of therapeutics in SCI are moving beyond safety trials that enroll sensorimotor complete thoracic injuries, where potentially deleterious effects may have less clinical impact but therapeutic efficacy may be harder to demonstrate. For cervical and incomplete SCI studies, based on promising animal model studies and where the prospect of efficacy may be greater, potential loss of function has greater clinical significance. Additional risks include enrolling non-responders and the use of insensitive endpoints. The detection of neuroplasticity linked to interventions, or their combination, is also important in understanding the optimal timing and dosing of interventions in incomplete and cervical subjects. To address these issues, it is necessary to consider parameters that are not captured by ASIA Impairment Scale categories and/or by the ISNCSCI exam itself. This may involve detecting and quantifying biological signals of therapeutic effect that could justify further study, even in the absence of immediate functional improvements (e.g. detecting improved axonal conduction in a remyelination intervention), or being able to quantify the impact of exercise and neuromodulation strategies. Due to the costs of clinical trials, the demands on subjects, and competition for enrollment, it is important to better define probable “responders” and “non-responders” to an intervention by improved patient “phenotyping”, while recognizing the changing demographics of SCI patient populations.

To consider these aspects, 5 talks (12-13 min each) will be presented on the following topics:

- 1) The issue of “phenotyping” SCI patients beyond the ISNCSCI exam – Tansey
- 2) Mechanistic measures in SCI (imaging, electrophysiology, etc.) – Guest
- 3) Incomplete SCI in clinical trials: balancing risk and potential for benefit – Tansey
- 4) Considerations in cervical SCI for clinical trials I: profiling the spectrum of injury – Tansey
- 5) Considerations in cervical SCI for clinical trials II: linking injury profile to UE function – Mulcahey

A discussion period with audience engagement led by Linda Jones will follow.

Workshop 22: October 26, 2017 (10:55 - 12:25)

Getting to Orgasm: It's possible

Dr. Marca Alexander^{1,2,3}, Dr. Jean Gabriele Previnaire⁴, Dr. Giulio DelPopolo⁵, Dr. Lesley Marson⁶

¹UAB School of Medicine Department of Physical Medicine and Rehabilitation, ²Birmingham VA Medical Center, ³Spalding Rehabilitation Hospital, ⁴Spinal Unit, Center Calve, Fondation Hopale, ⁵Spinal Unit and Neuro-Urology, Careggi University Hospital, ⁶Department of Urology, School of Medicine and MOPH Eshelman School of Pharmacy UNC

Recently there has been a great increase in our knowledge regarding spinal cord injury (SCI) and male and female orgasm. Approximately 50% of persons with SCIs report the ability to achieve orgasm. New medications and manual devices are also available to improve sexual responses. However, there is a subgroup of persons with SCIs with lower motor neuron type injuries affecting the lowest sacral segments that have more difficulties in achieving orgasm. In addition those persons with spinal cord damage in the thoracolumbar area have been shown to have difficulty with arousal and ejaculation. This subpopulation of persons with SCI is less likely to achieve sexual fulfillment.

Recent investigators have also negatively portrayed orgasm, highlighting autonomic dysreflexia instead of orgasm, and focusing on the rare possibility for associated severe dysreflexia. In light of the psychological aspects of orgasm, it is possible this false negative information regarding orgasm could cause a placebo effect decreasing patient's ability to achieve orgasm. Moreover, research on the potential benefits of orgasm in areas such as decreasing spasticity has not moved forward.

The aim of this workshop is designed to provide a review of arousal and orgasm, from preclinical and human studies regarding the physiology of sexual arousal and orgasm to a realistic assessment of the risks and benefits of orgasm and how to document and treat orgasmic dysfunction after SCI. Topics will include a review of preclinical and human models to study sexual response, the spinal ejaculation generator, the use of medications and manual devices to facilitate arousal and orgasm, the risks and benefits of orgasm and the use of the International Standards and Basic Sexual Function data sets to guide treatment of orgasmic dysfunction

Schedule:

- Lesley Marson, PHD The need for a translational approach in sexual research--18 min
- Giulio Del Popolo, MD Erectile dysfunction and orgasm - PDE5 inhibitors and more—15 min
- Jean Gabriel Previnaire, MD Ejaculation versus orgasm with special attention to risks and benefits-18 min
- Marca Alexander , MD: Women's orgasm: What we and don't know-10 min and Promoting sexual capabilities with up-to-date documentation-10 min
- Discussion-19 min

Workshop 23: October 26, 2017 (10:55 - 12:25)

SCI Clinical Research Engagement Workshop: Developing an Active Research Network

Associate Professor Douglas J Brown¹, Dr Keith Hayes², Mr Kent Bassett-Spiers², Dr Vanessa Noonan^{3,4}, Professor John D Steeves⁵, Associate Professor Kim D Anderson-Erisman⁶, **Dr Phalgun B Joshi³, Professor Armin Curt⁷**, Dr Harvinder S Chhabra⁸, **Dr Jane Hsieh⁹**, Mrs Emma Peleg¹
¹Spinal Research Institute, ²Ontario Neurotrauma Foundation, ³Rick Hansen Institute, ⁴University of British Columbia, ⁵ICORD, University of British Columbia and Vancouver Coastal Health, ⁶University of Miami Miller School of Medicine, Department of Neurological Surgery, Miami Project to Cure Paralysis, ⁷Spinal Cord Injury Center, Balgrist University Hospital, University of Zurich, ⁸Indian Spinal Injuries Centre, ⁹Accelerated Translational Program of Wings for Life

SCI research requires networks and partnerships to be more successful. Several groups are working on diminishing barriers that prevent pilot studies progressing to larger multi-centre studies, necessary for outcomes that change clinical practice. As these limitations, such as financial resources and regulatory requirements, are explored, the need for an international collaborative structure to underpin research efforts becomes clearer.

Research to repair spinal cord damage is well established, however without improvements to the secondary health outcomes, those with SCI continue to face serious challenges every day and may not be in a position to take full advantage of a cure when it comes.

Following the theme of workshops at recent ISCoS meetings, this session will focus on strengthening communication, networking and partnerships among SCI researchers globally. Its aim will be to stimulate cooperation to support and enhance international trials.

Objectives of the Workshop

1. To determine network structures that will enable researchers to make 'real time' connections
2. To determine ways to make the network user friendly, focused and functional for researchers on an ongoing basis
3. To decide how to implement collaborative action during the next 12 months

Format

- Invited speakers will update the current status of international SCI research collaborations (45 min)
- Breakout groups will enable participants to develop solutions to the above objectives (35 min)
- Summary and plan for ongoing development of collaborative networks (10 min)

Who should attend?

Clinicians, clinical researchers, trainees, consumers, industry, funders and professional SCI organizations interested in advancing SCI clinical research.

Leadership

Chair: Associate Prof. D. J. Brown.

Topics and speakers:

- 1) The Evolving Paradigm Shift Toward International Collaboration: Dr Keith Hayes
- 2) Praxis - International collaborations to overcome the translational valleys of death in SCI: Dr Phalgun Joshi

- 3) European Multi-Center Study about Spinal Cord Injury (EMSCI): Progressing from a Research to a Clinical Trials Network: Professor Armin Curt
- 4) Overcoming the #1 barrier to successful completion of clinical trials in SCI: Dr Jane Hsieh

Sponsoring Organizations

The Spinal Research Institute, the Rick Hansen Institute, the Ontario Neurotrauma Foundation and the European Multicenter Study about Spinal Cord Injury.

Workshop 24: October 26, 2017 (10:55 - 12:25)

Starting SCI rehabilitation in Africa - The Spinalis concept -an eight year experience in Botswana, Namibia and Zambia

M.D., Ph.D., Professor Claes Hultling¹, Ph.D.,P.T. Inka Löfvenmark¹, M.D. Brian Sonkwe², M.D. MSc Sharon Masaka³

¹Spinalis/Karolinska Institutet, ²University Teaching Hospital, ³Princess Marina Hospital/Spinalis Unit

The Spinalis foundation started operations in Botswana in 2009 - after an improvised start-up meeting in the fall of 2008. The initial thought was to secure a better everyday Life for the SCI persons in the country - and to prevent dying. The mortality was extremely high. With financial support from SIDA a team including a doctor, nurse, PT, OT, and rehab coach went to Botswana in April 2010 to initiate work hands on in the orthopedic ward where the SCI patients were "treated" - or let to die. In March 2011 negotiations with the Princess Marina Hospital and MoH resulted in a building of our own. Extensive refurbishment of the unit was conducted and in July the same year Spinalis Botswana opened with 14 beds for inpatients and at that time catering for 140 outpatients. In the summer of 2012 the Motor Vehicle Accident-Fund from Windhoek, Namibia came for a visit and asked Spinalis to do a "Blueprint" at Windhoek central Hospital. After further fundraising we manage to get support and in August of 2013 the same type of contingent was sent to Windhoek. During these years an exchange of staff has been ongoing. The Spinalis Foundation has supported local doctors from Gaborone and Windhoek to attend ISCOS meetings from 2009 and onwards. Educational SCI-courses has been conducted at the medical schools in both countries. Senior collaborators from Spinalis foundation has been part of the steering committees in both countries and a "manual" with over 600 pages addressing most of the matters that needs to be addressed when starting an SCI unit in a developing country has been developed. After years of enquiries, Spinalis visited Lusaka, Zambia February 2016 - to investigate possibilities to start specialized SCI-rehabilitation at the University Teaching Hospital in Lusaka. A follow-up visit was conducted in December and presently we are finishing negotiations with MoH in Lusaka to set the conditions for our engagement in the country. Our workshop will point beyond our self 's – looking for the next challenge and the next country. Part of this movie will be shown: <https://vimeo.com/194041514> password: Africa

Workshop 25: October 26, 2017 (10:55 - 12:25)

Healthy lifestyle in spinal cord injury; from knowledge to practice. An international perspective.

Mr Rogier Broeksteeg, Dr Karin Postma, Dr Kerstin Wahman, Dr Toni Williams, Professor Kathleen Martin Ginis, Dr Rita van den Berg-Emons¹

¹Erasmus Medical Center Rotterdam

Biography:

BIOGRAPHICAL SKETCH

Name Hendrika Johanna Gerarda van den Berg-Emons (Rita)

Gender Female

Day of birth 14/01/1966

Academic education Health Sciences, Human Movement Sciences, MSc
Maastricht University, The Netherlands
1988

Doctorate PhD Health Sciences
Maastricht University, The Netherlands
1996

Thesis: 'Physical training of school children with spastic cerebral palsy'

Current appointment Erasmus MC, Dept. Rehabilitation Medicine
Rotterdam, The Netherlands
Since 1996

Position Senior researcher and program leader 'MoveFit' (Movement behaviour and fitness in chronic physical conditions)

Brief summary of academic and research experience

Since 2003, Dr. van den Berg-Emons is leader of the research theme 'MoveFit: Movement behaviour and fitness in chronic physical conditions'. Mission of the research theme is to optimise treatment regarding physical behaviour (physical activity and sedentary behaviour) and physical fitness of persons with a chronic physical condition, aiming to improve health, participation and quality of life. Focus of 'MoveFit' is on 1] the impact of chronic conditions on physical behaviour and fitness; and 2] the development, evaluation, and implementation of testing and treatment strategies regarding physical behaviour and fitness. Studies are performed in spinal cord injury, cerebral palsy, spina bifida, stroke, and cardiovascular disease. Over the years, research within MoveFit has resulted in the availability of valid accelerometry-based instruments to quantify physical behaviour in people with chronic physical conditions, including wheelchair-dependent people. Furthermore, MoveFit has made important contributions to the often scarce knowledge on the impact of chronic conditions on physical behaviour and fitness. Based on this knowledge, during the last years several innovative treatment modules to improve and maintain physical behaviour and fitness in chronic conditions have been developed. Short- and long-term (cost-) effectiveness has been evaluated in multi-center randomized controlled trials. Currently, evidence-based physical behaviour and fitness modules for

ambulatory and wheelchair-dependent people with a chronic condition are nationally implemented within regular treatment programmes.

During inpatient rehabilitation, persons with spinal cord injury (SCI) participate in therapies in which they are physically active. However, after discharge from the rehabilitation centre, daily physical activity levels in wheelchair-dependent persons with SCI are known to relapse to a level that is severely low compared to the general population and also compared to persons with other chronic diseases.(1) Given the favourable effects of an active lifestyle, interventions are needed to optimize physical behaviour in persons with SCI. Generally, rehabilitation professionals are aware of the risk of reduced physical activity in SCI and appreciate the importance of an active and healthy lifestyle. However, they do not always know how to implement strategies in regular care to improve physical behaviour.(2)

Aim of the workshop is to:

1. Share knowledge on physical behaviour in persons with spinal cord injury (both wheelchair-dependent and ambulatory), its impact on fitness, health, and other ICF domains, and effectiveness of treatment programs to improve physical behaviour.
2. Share experiences from different countries regarding implementing healthy lifestyle programs for persons with SCI.

The workshop is relevant for everyone interested in physical activity, physical fitness, and health in persons with SCI, including therapists, physicians, and researchers.

Description of the workshop

1. Opening (2 minutes) and introduction (10 minutes): Physical behaviour in persons with SCI
2. Conclusions from local research and implementation of lifestyle programs
 - ☐ Canada (15 minutes)
 - ☐ Sweden (15 minutes)
 - ☐ United Kingdom (15 minutes)
 - ☐ The Netherlands (15 minutes)
3. Discussion: questions and experiences from the audience (15 minutes)
4. Closing (3 minutes)

References

1. Berg-Emons van den RJ, Bussmann JB, Stam HJ. Accelerometry-based activity spectrum in persons with chronic physical conditions. *Arch Phys Med Rehabil* 2010;91:1856-1861
2. Williams TL, Smith B , Papathomas A. Physical activity promotion for people with spinal cord injury: physiotherapists' beliefs and actions. *Disability and Rehabilitation* 2016 Dec 5:1-10. [Epub ahead of print]

Workshop 26: October 26, 2017 (14:10 - 15:40)

Clinical Trials: Lessons Learned, Challenges, Solutions

Ms. Linda Jones¹, Professor Armin Curt², Ms. Jane Hsieh³, Dr Andrew Blight, Dr Patrick Freund, Jim Guest, Professor John Steeves⁴

¹*Craig H. Neilsen Foundation*, ²*University of Zurich, The Balgrist*, ³*Wings for Life*, ⁴*University of British Columbia*

Title of Course: Clinical Trials: Lessons Learned, Challenges, Solutions(sponsored by SCOPE)

Type of Course: Workshop

Overall Course Objective: Present an overview of the evolution of clinical trials, what has been learned from previous trials, and how current challenges can be addressed.

Educational Objectives:

1. Assess current trends in the clinical trials landscape.
2. Describe lessons learned from prior clinical trials.
3. Discuss novel approaches and solutions, applicable in current and future clinical trials.

Synopsis:

The recent increase in SCI clinical trials provides an opportunity to reflect on changes in the clinical trial landscape, what has been learned, challenges and innovative methods for addressing these challenges. Based on five-year data from the SCOPE clinical trials tables, we will highlight trends in the delivery and assessment of therapeutic interventions. We will then outline challenges and lessons learned, and describe an international initiative identifying study design alternatives and implementation tools for clinical trials. A panel discussion involving clinical trial sponsors with audience participation will then address how solutions can be implemented in current and future trials.

The target audience is basic science researchers, clinical investigators and SCI clinicians, all of whom are necessary to the successful completion of a human study.

This workshop is sponsored by SCOPE (Spinal Cord Partnership Endeavors).

Proposed agenda:

1. Introduction and review of trends in SCI trials, 20 mins. (Linda Jones)
2. Lessons learned from recent trials, 20 mins. (Armin Curt)
3. Novel approaches to old and emerging challenges; SCITT and STUDI, 15 mins. (Jane Hsieh)
4. Implementation of solutions, 30 mins. Panel and audience discussion: Moderator: Andy Blight, Panel Participants: Patrick Freund, James Guest, John Steeves.
5. Overall summary, 5 mins.

Workshop 27 – Parallel 1: October 26, 2017 (14:10 - 15:40)

Put On Your Air Mask First! Keeping that passion alive through the generations!

M.D., Ph.D., Professor Claes Hultling¹, Professor Amie Jackson McLain², Associate Chief of Staff Marcalee Alexander³, Dr Ruth Marshall⁴, Dr Chloe Slocum

¹Spinalis/karolinska Institutet, ²University of Alabama, ³VA Med Center, ⁴SA Spinal Cord Injury Service. Central Adelaide Local Health Network

SCI professionals deal with daily stress and trauma that takes a toll on patients and providers. Frustration grows when one must correct generalist's errors and heightens with new regulatory or financial burdens. Hiring one's successor is difficult because young physicians rarely choose to work in SCI, in part due to a lack of workplace satisfaction and work-life balance. In this demanding environment, issues of provider self-care and balance are often overlooked. Providers worry about our patient's and other's health, accomplishing work and balancing the bottom line but forget themselves. Without physical and emotional health, caring for others becomes difficult. Burnout is an international, common problem in healthcare resulting from exhaustion, disempowerment and frustration. In 2015, Shanafelt et al, evaluated physician burnout and satisfaction with work-life balance and discovered the percentage of physicians experiencing one or more symptoms of burnout increased from 45.5% in 2011 to 54.4% in 2014 (P<.001). Psychiatry was amongst the specialties with the highest burnout rates. Concomitantly, physician satisfaction decreased from 48.5% to 40.9% overall (P<.001). Wayne M. Sotile, Ph.D., suggests medical providers foster resilience to combat burnout—similar to the way we coach our patients post- SCI by learning techniques to diminishing stress and creating a sense of empowerment. The objective of this participatory workshop is to bring together seasoned and junior providers to assist participants in understanding burnout and work-life balance and discovering their own personal and professional needs. The workshop will begin with a discussion of the ideal SCI provider. Participants will perform a personal self-assessment, "burnout" questionnaire to assess their own stress. The importance of balance and fostering resilience through social media and networking will be discussed. A brief session of mindfulness, qi gong and yoga will be held for participants to experience techniques to relieve stress. A closing discussion will allow participants to follow through and review their concerns and next steps. 1)What makes a great SCI provider? Claes Hultling -20 minutes.2)Provider stressors and burnout. Amie McLain-20 minutes.3)Resources and strategies for beginning and later career providers-Chloe Slocum 15 Minutes.4)Integrative health techniques to decrease stress-Marca Alexander 20 minutes.5)Discussion-15 minutes.

Workshop 28: October 26, 2017 (14:10 - 15:40)

Exoskeletal-Assisted Walking in Acute Inpatient and Chronic Outpatient Spinal Cord Injury Rehabilitation

Dr Ann M. Spungen^{1,2}, Dr. Chester Ho^{3,4}, Dr. Luciano Bissolotti⁵, Dr. Gail F. Forrest^{6,7}

¹James J. Peters VA Medical Center, ²Icahn School of Medicine at Mount Sinai, ³University of Calgary, ⁴Foothills Hospital, ⁵Fondazione Teresa Camplani Casa di Cura Domus Salutis, ⁶Kessler Foundation, ⁷UMDNJ-NJ School of Medicine

Chester Ho, MD (University of Calgary and Foothills Hospital, Alberta, Canada) will report on the safety and feasibility of exoskeletal-assisted walking (EAW) for gait training during acute, inpatient spinal cord injury (SCI) rehabilitation. A case series of six inpatients, who have participated in 25, one-hour EAW sessions using the Ekso, will be reported before and during EAW training for variables of blood pressure, skin integrity, exertion, and gait parameters. Preliminary results demonstrate that gait training with the exoskeleton is safe and feasible during the acute, inpatient phase after SCI.

Luciano Bissolotti, MD (Casa di Cura Domus Salutis, Brescia, Italy) will report on the estimation of muscle fatigue in chronic, incomplete SCI by using sophisticated histogram analysis of quadriceps EMG signals of motor unit activation patterns before and after a single session of EAW training in the ReWalk exoskeleton. This work will shed light on the clinical significance of combined analysis of surface EMG and knee joint kinematics as a tool to understand muscle recruitment changes secondary to gait training with the ReWalk. Data may be useful for the prescription of a more precise rehabilitation gait training program in the clinical setting.

Gail F. Forrest, PhD (UNDMJ-New Jersey Medical School and Kessler Foundation, West Orange, NJ) will report on 10 individuals with chronic, incomplete SCI who had a baseline lower extremity motor score of at least 1 and who have trained in either the Ekso or ReWalk for 100 hours. Gait data, kinematic and EMG changes for the lower and upper extremity after 50 hours and 100 hours of EAW training will be reported. In addition, data will also be presented for over ground walking recovery on a subgroup of individuals.

Ann M. Spungen, EdD (JJPVA Medical Center, Bronx, NY and Icahn School of Medicine at Mount Sinai, NY) will report on 20 participants with chronic SCI who have completed 36, one-two hour sessions in three months of outpatient EAW training in either the Ekso or ReWalk for changes in the lipid profile, body composition by DXA, and patient reported outcomes of the SCI-QOL bowel and bladder surveys.

Workshop 29: October 26, 2017 (14:10 - 15:40)

How to Deliver a Cognitive Behavioural Therapy Pain Management Programme for Spinal Cord Injury: Both Face to Face and Online.

Miss Dearbhla Burke^{1,3}, Dr. Olive Lennon^{1,3}, **Dr. Maeve Nolan**², Dr. Eimear Smith², Ms Fiona Maye², Ms Sadb Ní Ghiolláin², **Mr. John Lynch**², **Dr. Brona Fullen**^{1,3}

¹UCD School of Public Health, Physiotherapy and Sports Science, University College Dublin, ²The Spinal Cord System of Care Team, The National Rehabilitation Hospital, ³UCD Centre for Translational Pain Research, University College Dublin

Introduction: Chronic pain is cited by patients as the most problematic secondary health complication to deal with after spinal cord injury (SCI). Cognitive behavioural therapy pain management programmes (CBT-PMPs) can reduce pain interference (1) and improve mood profiles (2,3). Programmes should be adapted specifically for SCI, delivered in a SCI rehabilitation unit and involve the expertise of SCI rehabilitation clinicians for optimal delivery.

Aim: To outline the process involved in developing, implementing and evaluating a CBT-PMP for managing chronic pain after SCI, using a multidisciplinary approach delivered both face to face and online.

Objective of workshop:

Following this workshop, delegates will be further informed on;

- The adaptations required to a traditional CBT-PMP to cater specifically for SCI patients.
- How to develop and implement a rehabilitation centre based CBT-PMP, including the required resources, multidisciplinary team involvement and the impact on service delivery.
- How to develop and design an online CBT-PMP using a co-design process, including insight on the proposed technical requirements, prototype design and evaluation, and final programme implementation.
- How to evaluate a CBT-PMP both quantitatively and qualitatively.
- The pros and cons of both online and face to face CBT-PMP delivery.

Methodology:

The facilitators will include a multidisciplinary team of both academic and clinical researchers who have engaged in the process of design and implementation of both centre based and online CBT-PMPs. They will possess in-depth, up-to-date knowledge from latest guidelines and research publications in addition to the relevant clinical experience. Case-based studies will be used to stimulate discussion and debate with regards to overcoming clinical barriers to delivery and optimal delivery mechanisms.

Conclusion: Annual CBT-PMPs should be considered for implementation in every SCI centre to assist in the management of chronic pain, a common and debilitating presentation post SCI. Although the implementation of a CBT-PMP is time consuming and costly, this workshop will outline, using an evidence based approach, how to efficiently deliver and implement a programme of this nature in a rehabilitation unit or online.

Workshop 30: October 26, 2017 (14:10 - 15:40)

Self-efficacy: concept, measurement and relevance for quality of life after SCI

Professor Marcel Post^{1,2}, Professor James Middleton³, Professor Denise Tate⁴

¹*De Hoogstraat Rehabilitation*, ²*University of Groningen*, ³*John Walsh Centre for Rehabilitation Research, The University of Sydney*, ⁴*Department of Physical Medicine and Rehabilitation, University of Michigan*

There is growing recognition for the importance of positive psychological factors as determinants of adjustment and enhanced quality of life in a severe chronic condition such as spinal cord injury (SCI). In this workshop, we will highlight self-efficacy as one of the key factors for adjustment, health and well-being. First, we will discuss how self-efficacy is operationalised and measured in SCI populations, and the clinimetric properties of these measures. Second, we will present a systematic review on the scientific evidence on associations between self-efficacy and physical and mental health outcomes in SCI. Third, we will utilize results from a large prospective cohort study to highlight the course of self-efficacy during and after inpatient rehabilitation after SCI, and associations between self-efficacy and psychosocial outcomes in this population. Fourth, we will present experiences with peer support in rehabilitation as a way to enhance self-efficacy in people with SCI. Finally, we will discuss the association between self-efficacy and quality of life and the clinical applications of this knowledge.

Presenters and tentative titles:

Denise G. Tate, PhD. (University of Michigan)

Title: Introduction to the workshop

Marcel W.M. Post, PhD. (De Hoogstraat Rehabilitation)

Title: Types and measures of self-efficacy in SCI research

Marcel W.M. Post, PhD. (De Hoogstraat Rehabilitation)

Title: Systematic review of associations between self-efficacy and physical and mental health in SCI

James W. Middleton, PhD. (The University of Sydney)

Title: Self-efficacy and resilience during and after SCI rehabilitation: a cohort study

Consumer (TBA): Enhancing self-efficacy by peer support and counseling.

Denise Tate, PhD. (University of Michigan)

Title: General discussion