

THE CANADIAN JOURNAL OF

# Neurological Sciences

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# Sciences Neurologiques

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32nd MEETING OF THE  
CANADIAN CONGRESS OF  
NEUROLOGICAL SCIENCES



Saskatoon, Saskatchewan

June 24 - 28, 1997

## ABSTRACTS

*The official Journal of:* The Canadian Neurological Society, The Canadian Neurosurgical Society,  
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Saskatoon, Saskatchewan

June 24 - 28, 1997

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OF NEUROLOGICAL SCIENCES

PROGRAM and  
ABSTRACTS

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**32nd Meeting of the Canadian Congress of Neurological Sciences**  
**June 24-28, 1997**  
**Saskatoon, Saskatchewan**  
**Program and Abstracts**

**TUESDAY, JUNE 24****Neurobiology Review Course: DNA and Beyond**

**Program Objectives:** The premise on which this ongoing course is based is that molecular neurobiology plays a fundamental role in understanding the pathogenesis and treatment of disorders of the nervous system. For the past three years, the specific objectives of the course has been to present up-to-date reviews that relate the understanding of molecular mechanisms to the management of four groups of neurological or neurosurgical disease.

- I) **Mitochondrial Diseases:** Eric Shoubridge will review the basic principles and recent advances in knowledge concerning mitochondrial genetics. Doug Arnold will relate this basic knowledge to the features and management of specific mitochondrial diseases. Both speakers have made important contributions to the understanding of mitochondrial diseases.
- II) **Disorders of Ion Channels:** Brian MacVicar will review the current understanding of the function and control of the main ion channels. George Ebers will discuss periodic paralysis and other inherited disorders of the ion channels.
- III) **CNS Regeneration:** Efforts to promote the regeneration of neural pathways in the CNS have expanded in the past two decades. Although clinical applications are still a hope, research on the regeneration of CNS pathways has made impressive advances in experimental situations. Two aspects of this promising field will be reviewed. Valerie Verge will review the current understanding of the molecules, both neuronal and non-neuronal, that are important for regeneration. Bob Brownstone, a neurosurgeon, will discuss recent efforts to promote spinal cord regeneration in experimental animals.
- IV) **Peripheral Nerve Injury:** In spite of the known capacity of axons to regenerate in the peripheral nervous system, clinical outcomes after nerve injury are often less than perfect. Tessa Gordon, who has made important research contributions to the field, will present experimental studies that help to explain poor recovery after delayed nerve repair. Raj Midha, a neurosurgeon, will relate the experimental findings of Dr. Gordon and other investigators to the use of transplants and other techniques for nerve repair.

**Instructional Objectives:** The course will utilize interactive techniques such as directed discussion periods and touch-pad responses to questions. By testing before-and-after knowledge of the audience, it is hoped that it will be possible to demonstrate increased understanding of the basic mechanisms of the selected disorders and how this information can be applied to management.

**Target Audience:** Residents and practitioners of neurology and neurosurgery.

*Chair: Garth Bray*

**Mitochondrial Diseases: Recent Advances**

Mitochondrial Genetics

Eric Shoubridge (Montreal)

Diseases Due to Mutations of Mitochondrial Genes

Douglas Arnold (Montreal)

**Ion Channels: A New Disease Category**

Ion Channel Function and Regulation

Brian MacVicar (Calgary)

Periodic Paralysis and Other Disorders of Ion Channels

George Ebers (London)

**Regeneration in the CNS: Two Perspectives**

The Molecular Basis of Regeneration

Valerie Verge (Saskatoon)

Spinal Cord Regeneration: Recent Advances

Robert Brownstone (Winnipeg)

**Peripheral Nerve Injury**

Delayed Nerve Repair: Biology of Poor Recovery

Tessa Gordon (Edmonton)

Transplants and Other Techniques for Nerve Repair

Rajiv Midha (Toronto)

**CHILD NEUROLOGY DAY****Cerebrovascular Disease in Infants and Children**

**Program Objectives:** The focus of this year's Child Neurology Day is cerebrovascular disease (stroke) in the neonate, infant, and young child. While not frequently recognized as a common occurrence, ischemic brain damage affects all age groups, and in particular the newborn and premature infant who often experience profound neurologic sequelae as a result of these devastating insults. Participants will leave with an understanding of the basic mechanisms of cerebrovascular disease in the immature brain, how development and aging affect brain damage following an ischemic insult, and a more complete background on the epidemiologic and clinical aspects and prognosis of stroke in the newborn, infant and young child. The day will end with a look towards the future aspects of treatment of stroke, together with a panel discussion and question period.

**Target Audience:** Adult and pediatric neurologists and individuals with an interest in cerebrovascular disease.

*Chair: William Logan*

Perinatal Hypoxic-Ischemic Brain Damage: Basic Mechanisms

Robert Vannucci (Hershey)

Effects of Age on the Susceptibility to Ischemic Brain Damage

Jerome Yager (Saskatoon)

Epidemiology of Stroke in the Infant and Child

Gabrielle de Veber (Hamilton)

Neuroradiologic Features of Stroke in Childhood

Karen Tong (Saskatoon)

Clinical Aspects and Prognosis of Hypoxic-Ischemic Injury in the Newborn

Alan Hill (Vancouver)

Potential Therapeutic Interventions in Perinatal Cerebral  
Hypoxia-Ischemia  
Robert Vannucci (Hershey)  
Case Presentations and Discussion

### **SS1 Controversies in Epilepsy: Polytherapy versus Monotherapy and the New Antiepileptic Drugs**

**Program Objectives:** Participants will appreciate the benefits and disadvantages of monotherapy and polytherapy in epilepsy. They will understand the influence of new antiepileptic drugs on the use of polytherapy and the potential use of new drugs in monotherapy. Finally, participants will further their knowledge of the new antiepileptic drugs in the management of difficult epilepsy cases.

**Target Audience:** General neurologists (adult and pediatric), Epileptologists, Neurology Residents

*Chair: Alan Guberman*

Monotherapy versus Polytherapy in Epilepsy: A Debate  
Michael Jones (Vancouver)  
Jack Schneiderman (Toronto)  
Illustrative Case Presentations  
Alan Guberman (Ottawa)  
Richard McLachlan (London)

### **SS2 Unusual Movement Disorders Video Session**

*Chair: Terry Curran*

**Program Objectives:** The Movement Disorder Video Session program objectives will be to review tapes of a variety of interesting movement disorders which will then be followed by a discussion of the differential diagnosis of the type of movement, and then a discussion of the underlying etiology.

**Instructional Objectives:** Persons attending this satellite would receive exposure to a variety of different movement disorders, and would hear a variety of experts discuss these cases. The unique aspect to this symposium is the continuous interaction between the moderators and the audience.

**Target Audience:** Neurologists, neurosurgeons, neuroscientists, neuropathologists, and any other person, especially residents and students who have an interest in neurology, and especially movement disorders.

### **SS3 Neurocritical Care: Trauma**

**Program Objectives:** To provide new insights into the mechanisms of TB/SI and to provide evidence-based guidelines for the monitoring and treatment of TB/SI.

**Instructional Objectives:** To understand the mechanisms of TB/SI; to understand the evidence for the use of monitoring devices; and, to understand the evidence on which treatments are based.

**Target Audience:** Practicing neurologists, neurosurgeons, residents.

*Chair: Richard Moulton*

Recent Advances in Basic Research in Spinal Cord Injury  
Michael Fehlings (Toronto)  
Treatment of Vasospasm & Subarachnoid Hemorrhage in Head Injury  
J. Max Findlay (Edmonton)  
Neurocritical Care in CNS Trauma  
Jeanne Teitelbaum (Montreal)

**WEDNESDAY, JUNE 25**

### **Meet the Expert Breakfast - Pediatric Neurology**

Research in Pediatrics: Is there a future?  
Robert Vannucci (Hershey)

### **C1 Peripheral Neuropathies**

**Program Objectives:** To provide a background in the clinical aspects of peripheral neuropathy to neurologists, neurological trainees and others that may be interested (electrophysiology technicians and neuromuscular fellows). In particular, this course would cover clinical approaches to the diagnosis of peripheral neuropathy, use of appropriate electrophysiological testing, the use of the nerve biopsy, and the use of molecular diagnostic laboratories. Specific neuropathies that are going to be covered in further detail include pediatric peripheral neuropathies, inflammatory demyelinating peripheral neuropathies, diabetic neuropathy and vasculitic and paraneoplastic neuropathies.

**Instructional Objectives:** To familiarize the attendee with the approach to peripheral neuropathy; To outline how to best to utilize diagnostic resources in patients with peripheral neuropathy; and To understand aspects of specific common disorders of the peripheral nerve.

**Target Audience:** General neurologists, neurological trainees, pediatric neurology trainees, electrophysiological technicians, neuromuscular fellows.

*Chair: Douglas Zochodne*

Ten Steps to Diagnose Peripheral Neuropathy and More  
Peter Dyck (Rochester)  
Electrophysiological Approaches of the Diagnosis of Peripheral Neuropathy  
John Stewart (Montreal)  
Use of the Peripheral Nerve Biopsy in the Diagnosis of Peripheral Neuropathy  
Gyl Midroni (Toronto)  
Use of the Clinical Molecular Diagnostics Lab in Inherited Peripheral Neuropathies  
Peter Bridge (Calgary)  
Molecular Biology of Inherited Neuropathies  
Eric Shooter (Stanford)  
Peripheral Neuropathies in the Pediatric Population  
Coleen Adams (Calgary)  
Management of the Inflammatory Demyelinating Peripheral Neuropathies  
Thomas Feasby (Calgary)  
The Impact of Diabetes on the Peripheral Nervous System  
Douglas Zochodne (Calgary)  
Paraneoplastic and Vasculitic Neuropathy  
Colin Chalk (Montreal)

### **C2 Movement Disorders**

**Program Objectives:** Participants will be exposed to a wide variety of movement disorders which will be discussed by a variety of movement disorder experts.

**Target Audience:** Neurologists, neurosurgeons, neuroscientists, neuropathologists, and any other person, especially residents and students who have an interest in neurology, and especially movement disorders.

SS = Satellite Symposium C = Course



**Parkinson's Disease***Chair: Ali Rajput*

Epidemiology of Parkinson's Disease

Ali Rajput (Saskatoon)

Pathogenesis of Parkinson's Disease

Donald Calne (Vancouver)

Parkinsonian Syndromes: Clinical Features

Anthony Lang (Toronto)

Pharmacological Basis of Therapy

Paul Bedard (Quebec)

Treatment of Parkinson's Disease (Controversies - Role of

Selegiline, Sinemet CR, Dopamine Agonist - Early vs. Late)

Stan Fahn (New York)

Surgical Treatments of Parkinson's Disease

Andres Lozano (Toronto)

Panel Discussion

**Other Movement Disorders***Chair: Terry Curran*

Huntington's Disease

Anne Young (Boston)

Essential Tumour

Stan Fahn (New York)

Ataxia

Anthony Lang (Toronto)

Dystonias

Donald Calne (Vancouver)

Botulinum Toxin - Present and Future Indications

Joseph Tsui (Vancouver)

Panel Discussion

**C3 Biological Behaviour of Malignant Gliomas: Implications for Treatment**

**Program Objectives:** To enlighten the participants concerning new findings concerning the molecular biology of malignant glial tumours. As well, to provide participants with information on different surgical treatment options for malignant glial tumours.

**Instructional Objectives:** To provide an overall basic science's framework for the making of decisions related to the surgical treatment of malignant gliomas. Through an interactive group session to provide feedback as to the array of surgical options available for the treatment of specific cases of malignant gliomas.

**Target Audience:** Basic scientists, graduates and post-graduate students, residents, fellows and clinicians interested in the treatment of patients with malignant gliomas.

*Chair: Rolando Del Maestro***Molecular Biology of Brain Tumours**

Outline of Course Objectives

Rolando Del Maestro (London)

The Genetics of Malignant Gliomas

P. Collins (Stockholm)

Cell Division Control in Glial Tumours

Peter Dirks (Toronto)

Growth Factors and Signal Transduction Systems

Abhijit Guha (Toronto)

Mechanisms of Tumour Cell Invasion

Verena Amberger (London)

**Surgical Treatment of Malignant Gliomas**

What Does "Malignant" Mean in Malignant Glioma?

R.R. Hammond (London)

Neuroleptic Anaesthesia in the Operative Management of

Children and Adults with Malignant Gliomas

Rolando Del Maestro (London)

Case Histories: Radiology, Pathology

Rolando Del Maestro (London)

Interactive Panel: What would you do?

Audience and guest speakers

**C4 Treatment of Complex Disorders of the Lumbar Spine: From Minimally Invasive to Heavy Metal**

**Program Objectives:** The participant will have an improved understanding of the anatomy and biomechanics of the lumbar spine and of the indications, limitations and principles of spinal instrumentation and image guided approaches to lumbar spine surgery.

**Target Audience:** Neurosurgeons and neurosurgery residents

*Chair: Michael Fehlings*

Anatomy, Clinical Biomechanics of the Lumbar Spine

John Hurlbert (Calgary)

Pedicule Screw Fixation of the Lumbar Spine

Robert Martin (Syracuse)

Anterior Fixation of the Lumbar Spine Including Endoscopic Approaches

Michael Fehlings (Toronto)

Image Guided and Minimally Invasive Approaches to the Lumbar Spine

Kevin Foley (Memphis)

Hands-on Image Guided Spinal Surgery

Case Discussions

Danek and ISG/Elekta Systems

Hands-on Cadaver Lab; Pedicle Screw and Anterior Fixation Approaches

CCNS Faculty

Case Discussions and Evaluation

**C5 Epileptic Syndromes and Their Genes: New Insights and Clinical Relevance**

**Program Objectives:** The object of this course is to review the present International Classification of Epilepsies and Epileptic Syndromes; to delineate the clinical and genetic aspects of various specific epilepsy syndromes, some of which have only recently been described; and to discuss a proposed genetic and pathological revision of the International Classification, in light of the recent findings. The speakers will present an update on a wide spectrum of epilepsy syndromes, including idiopathic generalized and partial epilepsies, disorders of neuronal migration and of cortical organization, and the progressive myoclonus epilepsies.

SS = Satellite Symposium C = Course

**Target Audience:** This course should be of interest to neurology and neurosurgery residents, practising neurologists and neurosurgeons, and epileptologists.

*Chairs: Fred Andermann, Eva Andermann*

ILAE Classification of Epilepsies and Epileptic Syndromes

Fred Andermann (Hampstead)

Idiopathic Generalized Epilepsy Syndromes

V. Elving Anderson (Minnesota)

Idiopathic Partial Epilepsy Syndromes

Ingrid Scheffer (Heidelberg)

Febrile Convulsions and Temporal Lobe Epilepsy

Richard McLachlan (London)

Disorders of Neuronal Migration and of Cortical Organization

Eva Andermann (Montreal)

Spasms and Other Seizures of Young Children

Kevin Farrell (Vancouver)

Progressive Myoclonus Epilepsies: Recent Genetic Findings

Leon Wolfe (Montreal)

Proposed Genetic and Pathological Revision of the International Classification

François Dubeau (Montreal)

Eva Andermann (Montreal)

### ***C6 Emerging Therapies for Dementia: What's New, What's Hot?***

**Program Objectives:** To provide an update on dementia therapies and allow participants to improve therapeutic skills.

**Instructional Objectives:** Overview of key components of anti-dementia therapies, trial designs, outcome variables, drug safety and efficiency profiles. Discussion on who to treat and how to assess efficacy in clinical practice.

**Target Audience:** All members of CCNS affiliated societies interested in the therapy of dementia. Special interest for clinicians treating demented persons.

*Chairs: Howard Feldman, Serge Gauthier*

Alzheimer Disease Therapy: Trial Designs and Outcome Variables

Serge Gauthier (Montreal)

Symptomatic Therapy of Alzheimer Disease

Howard Feldman (Vancouver)

Symptomatic Therapy of VD

Ken Rockwood (Halifax)

Stabilization and Preventive Strategies of AD

Leon Thal (La Jolla)

Therapeutic Objectives of Dementia Treatment

William Pryse-Phillips (St. John's)

### ***SS7 A New Advance in the Treatment of Epilepsy: A Focus on Topiramate***

**Program Objectives:** To inform participants of the appropriate use and role of topiramate in the treatment of epilepsy.

**Target Audience:** Neurologists, Neurosurgeons, Allied Health Professionals who deal with patients with epilepsy (eg. Neurological Nurses).

*Chair: Joseph Bruni*

Clinical Pharmacology and Basic Mechanisms of Action of Topiramate

Jack Schneiderman (Toronto)

Efficacy of Topiramate in Clinical Trials in Adult Refractory Epilepsy

Joseph Bruni (Toronto)

Experience with Topiramate in Pediatric Patients

Tracy Glauser (Cincinnati)

Topiramate: Safety and Tolerability in Clinical Trials as well as Clinical Practice

Michael Jones (Vancouver)

The Role of Topiramate in Clinical Practice Based on Clinical Experience in the United Kingdom

TBA

Panel Discussion and Question Period

### ***SS8 Non-cognitive Clinical Manifestations of Alzheimer's Disease: Theoretical Considerations and Practical Implications***

*Chair: Howard Feldman*

## **THURSDAY, JUNE 26**

### ***Meet the Expert Breakfast - Neurology***

*Poster Session I*

*Plenary Session I*

*Chairs: Oksana Suchowersky, Norman Hill*

***Speaker of the Royal College of Physicians and Surgeons - Neurology:***

Anne Young (Boston)

Functional Anatomy of the Basal Ganglia

***Speaker of the Royal College of Physicians and Surgeons - Neurosurgery:***

Kevin Foley (Memphis)

Spinal Stereotaxis: History, Evolution, and State-of-the-Art

K.G. McKenzie Prize Paper in Clinical Neuroscience Research

Philip Porter (Toronto)

Herbert Jasper Prize Paper

David Houlden (North York)

***Speaker of the Royal College of Physicians and Surgeons - Paediatric Neurology:***

Fred Andermann (Hampstead)

Epilepsy: New Insights, New Trends

***Free Communications***

## **FRIDAY, JUNE 27**

### ***Meet the Expert Breakfast - Neurosurgery***

*Poster Session II*

*Plenary Session II*

*Chairs: Oksana Suchowersky, Norman Hill*

***Richardson Lecture:*** An Insight into Neurodegenerative Disease

Ali Rajput (Saskatoon)

***Penfield Lecture:*** The Internet, Neurosurgery and Patient Empowerment

Patrick Kelly (New York)

K.G. McKenzie Prize Paper in Basic Neuroscience Research

Ian Parney (Edmonton)

SS = Satellite Symposium C = Course

President's Prize Paper - Child Neurology

Brenda Banwell (Toronto)

*Canadian Society of Clinical Neurophysiologists Guest*

*Lecture:* The Efficacious

Peter Dyck (Rochester)

Treatments for Varieties of Peripheral Neuropathy

*Free Communications*

## SATURDAY, JUNE 28

### **SS4 Recent Advances in Cerebrovascular Diseases: An Update of the Basic Mechanisms, Clinical Manifestations and Management**

**Program Objectives:** To enhance knowledge about the linkages between the basic mechanisms of stroke, clinical manifestations and subsequent management. As well, to enhance linkages between questions resulting from clinical practice and the seeking of answers by going back to the basics. Thrombolytic Therapy presentation, the objectives are to understand the benefits, indications, hazards, and contraindications of thrombolysis.

**Instructional Objectives:** This symposium will provide the following instructional objectives: define and describe pathophysiology of cerebral ischemia; the recent advances in damage assessment by MRI, urgent radiological evaluation, neuroprotective agents and the indications for anti-coagulant therapy in stroke; the impact a peri-natal brain injury has on development; identify the need for emergency evaluation of the suspected stroke patient; compare and contrast the various strategies for management of carotid disease; and summarize the current management of acute stroke and considers what we might expect in the future.

**Target Audience:** Clinical Neurologists, Basic Scientists, Family Physicians and Allied Health Care Professionals

#### **Basic Mechanisms**

*Chairs: Christopher Wallace, J. Thornhill*

Welcome and Opening Remarks

Robert Coté (Montreal)

Pathophysiology of Cerebral Ischemia

TBA

Ischemic Penumbra

Antoine Hakim (Ottawa)

Recent Advances in Damage Assessment by MRI and Other Techniques

James Peeling (Winnipeg)

*Chairs: Christopher Wallace, Antoine Hakim*

Perinatal Brain Injury: Effects of Development

Robert Vannucci (Hershey)

Canadian Stroke Society Prize Essay Presentation

Robert Coté (Montreal)

#### **Clinical Mechanisms**

*Chairs: Robert Coté, Vladimir Hachinski*

Brain Attack: Emergency Evaluation of the Suspected Stroke Patient

Vladimir Hachinski (London)

Urgent Radiological Evaluation: CT, MRI/MRA, Doppler,

Angiography

Allan Fox (London)

Antiplatelet Agents: ASA, Ticlopidine, Dipyridamole and

Clopidogrel

Donald Easton (Providence)

Anti-Coagulant Therapy: Indications in Cardiac and Non-Cardioembolic Stroke

Richard Lindley (Edinburgh)

*Chairs: Stephen Phillips, John Norris*

Thrombolytic Therapy

Philip Teal (Vancouver)

Neuroprotective Therapy

Alastair Buchan (Calgary)

Management of Carotid Disease: Surgery or Balloons?

J. Max Findlay (Edmonton)

Christopher Wallace (Toronto)

Management of Acute Stroke: What Can We Expect in the Future?

Ashfaq Shuaib (Saskatoon)

### **SS5 Multiple Sclerosis Update**

**Program Objectives:** Participants will understand the clinical and MRI outcomes used in MS clinical trials, with specific reference to recently completed positive phase III trials. The limitations of these outcome measures will also be understood. To understand what clinical and MRI outcomes can/should be used in clinical practice. To understand the immune mechanisms involved/alterd in the use of these drugs. They will also understand the current state of knowledge regarding the use of immunologic parameters in monitoring MS (ie. neutralizing antibody to beta-interferons). To understand the potential/expected benefits of new treatments for MS. They will understand who may benefit from these treatments and understand how, in detail, treatment initiation and continuation should proceed. They will also understand potential side effects and how they can be managed as well as what potential new treatments are on the horizon.

**Instructional Objectives:** To understand the evidence for use of new treatments for MS; how these treatments are thought to work; and, to be able to safely and effectively apply these new treatments in clinical practice.

**Target Audience:** Practicing neurologists and residents

*Chair: Luanne Metz*

Brief Introduction to the Canadian Network of MS Clinics

Luanne Metz (Calgary)

#### **Outcome Measures from Clinical Trials to Clinical Practice**

Clinical Outcomes

Paul O'Connor (Toronto)

MRI Outcomes

Donald Paty (Vancouver)

Immune Mechanisms of Treatment

Mark Freedman (Ottawa)

#### **Disease Management**

Copaxone

Ken Johnston (Baltimore)

Beta-Interferons

George Rice (London)

Other Treatments

Gordon Francis (Montreal)

Panel Discussion

SS = Satellite Symposium C = Course



***SS6 Headache Management - Migraine & Cluster***

**Program Objectives:** To demonstrate the interaction between the understanding of pathophysiology of migraine and cluster and application of pharmacology to their treatment.

**Instructional Objectives:** To familiarize the attendee with recent advances in and understanding of the mechanism of cluster headache and migraine. To discuss problem oriented management of cluster and chronic daily headache.

**Target Audience:** Neurologists, residents, neurosurgeons

*Chair: Marek Gawel*

SS = Satellite Symposium C = Course

Introduction

Marek Gawel (North York)

The New Pharmacology of Migraine

Michael Cutrer (Boston)

New Understanding of Cluster Headaches

Jan Erik Hardebo (Lund)

Case Studies in Migraine and CDH

Werner Becker (Calgary)

Case Studies in Cluster

Marek Gawel (North York)