

**The Canadian
Journal of
Neurological
Sciences**

**Le Journal
Canadien des
Sciences
Neurologiques**

SPECIAL SUPPLEMENT

**3RD CANADIAN CONFERENCE
ON
NEURODEGENERATIVE
DISEASES**

Proceedings of a Symposium
held in L'Estérel, Québec

April 4 – 6, 1991



The Official Journal of

The Canadian Neurological Society
The Canadian Neurosurgical Society
The Canadian Society of Clinical Neurophysiologists
The Canadian Association for Child Neurology

The Canadian Journal of Neurological Sciences
Volume 19, No. 1 (Supplement) February 1992

SPECIAL SUPPLEMENT

**3RD CANADIAN CONFERENCE
ON
NEURODEGENERATIVE
DISEASES**

Proceedings of a Symposium
held in L'Estérel, Québec

April 4 – 6, 1991



Editor/Rédacteur en chef James A. Sharpe *Toronto*
Associate Editors/Rédacteurs associés Larry Becker *Toronto* Yves Lamarre *Montréal*
John Girvin *London* Terry Picton *Ottawa*
Past Editors Robert G. Lee *Calgary*
Robert T. Ross (founding editor) *Winnipeg*
Book Review Editor/Rédacteur de critiques de livres Mary Anne Lee *Calgary*
News Editor/Rédacteur (nouvelles) John Norris *Toronto*
Managing Editor/Administratrice adjointe Sally A. Gregg *Calgary*

Editorial Board/Conseil Scientifique

Peter Ashby <i>Toronto</i>	Peter Humphreys <i>Ottawa</i>
Warren Blume <i>London</i>	Richard Leblanc <i>Montréal</i>
Jean-Pierre Bouchard <i>Québec</i>	George Karpati <i>Montréal</i>
Garth Bray <i>Montréal</i>	Patrick McGeer <i>Vancouver</i>
Donald Calne <i>Vancouver</i>	Richard Riopelle <i>Kingston</i>
Peter Camfield <i>Halifax</i>	Richard Stein <i>Edmonton</i>
Pierre Duquette <i>Montréal</i>	John Stewart <i>Montréal</i>
George Ebers <i>London</i>	Charles Tator <i>Toronto</i>
Serge Gauthier <i>Montréal</i>	

Publications Committee/Comité de Rédaction

William F. Brown <i>London</i>	Warren Blume <i>London</i>
Gary Ferguson <i>London</i>	John Tibbles <i>Victoria</i>

The Official Journal of/La Revue Officielle de:

The Canadian Neurological Society
La Société Canadienne de Neurologie
President/Président — Richard Riopelle
Secretary-Treasurer/ — O. Suchowersky
Secrétaire-Trésorier

The Canadian Society of Clinical Neurophysiologists
La Société Canadienne de Neurophysiologie Clinique
President/Président — W. Pryse-Phillips
Secretary-Treasurer/ — Michael Jones
Secrétaire-Trésorier

The Canadian Neurosurgical Society
La Société Canadienne de Neurochirurgie
President/Président — André Olivier
Secretary-Treasurer/ — Renn Holness
Secrétaire-Trésorier

The Canadian Association for Child Neurology
L'Association Canadienne de Neurologie Pédiatrique
President/Président — Shashi Seshia
Secretary-Treasurer/ — William Logan
Secrétaire-Trésorier

The permanent secretariat for the 4 societies and the Canadian Congress of Neurological Sciences is at/
Le secrétariat des 4 associations et du Congrès Canadien des Sciences Neurologiques est situé en permanence à:
810, 906 - 12 Avenue S.W., Calgary, AB Canada T2R 1K7

The Canadian Journal of Neurological Sciences is published quarterly. The annual subscription rate is \$60 for members; \$70 for non-members in Canada; \$80 for USA and elsewhere. Residents, Interns, Pre- and Post-Doctoral Students \$30 per annum (members); \$40 per annum (non-members). Single copies \$18 each plus postage and handling. All manuscripts and communications should be sent to: Canadian Journal of Neurological Sciences, P.O. Box 4220, Station C, Calgary, AB Canada T2T 5N1. Courier to: 8th Floor, 906 - 12th Avenue S.W., Calgary, AB Canada T2R 1K7. Telephone (403) 229-9575.

COPYRIGHT© 1992 by THE CANADIAN JOURNAL OF NEUROLOGICAL SCIENCES INC. No part of this journal may be reproduced in any form without the prior permission of The Canadian Journal of Neurological Sciences. Mailed under Publications Mail registration number 3307. Postage paid at Calgary, Alberta. This journal is indexed by *Index Medicus*, *Excerpta Medica* and *Current Contents — Clinical Practice and Life Sciences*.

Le Journal Canadien des Sciences Neurologiques est publié trimestriellement. L'abonnement annuel est de 60 \$ pour les membres; 70 \$ pour les non-membres au Canada; 80 \$ pour les États Unis et ailleurs. Internes, résidents, fellows pré et post doctoral: 30 \$ par année (membres); 40 \$ par année (non-membres). Copie simple: 18 \$ plus affranchissement et manutention. Toutes les communications et les manuscrits doivent être adressés à Journal Canadien des Sciences Neurologiques, P.O. Box 4220, Station C, Calgary, AB Canada T2T 5N1. Par courrier: 8th Floor, 906 - 12th Avenue S.W., Calgary, AB Canada T2R 1K7. Téléphone (403) 229-9575.

DROITS D'AUTEUR© 1992: THE CANADIAN JOURNAL OF NEUROLOGICAL SCIENCES INC. Aucune partie de ce Journal ne peut être reproduite, sous quelque forme que ce soit, sans la l'autorisation du Journal Canadien des Sciences Neurologiques. Posté sous permis de poste-publications no 3307. Port payé à Calgary, Alberta. Le Journal est cité et indexé dans *Index Medicus*, *Excerpta Medica* et *Current Contents — Clinical Practice et Life Sciences*.

Advertising representative/Représentant de publicité Sally Gregg, Canadian Journal of Neurological Sciences
810, 906 - 12 Ave. S.W., Calgary, AB Canada T2R 1K7 — (403)-229-9575

Printer/Imprimeur McArA Printing Limited, 105, 2507 - 12th Street N.E., Calgary, Alberta T2E 7L5

ISSN 0317 - 1671

3rd Canadian Conference on Neurodegenerative Diseases

Table of Contents

Acknowledgement	iv
Introduction	v
Frequency and Cause of Parkinson's Disease <i>A.H. Rajput</i>	103
A Rationale for Dopamine Agonists as Primary Therapy for Parkinson's Disease <i>C.W. Olanow</i>	108
Prevention and Management of Late Stage Complications in Parkinson's Disease <i>A. Jon Stoessl</i>	113
Amyotrophic Lateral Sclerosis, Parkinson's Disease and Alzheimer's Disease: Phylogenetic Disorders of the Human Neocortex Sharing Many Characteristics <i>Andrew Eisen and Donald Calne</i>	117
Interactions Between MPTP-Induced and Age-Related Neuronal Death in a Murine Model of Parkinson's Disease <i>William G. Tatton, Carol E. Greenwood, Nadine A. Seniuk and Paul T. Salo</i>	124
Levodopa-Induced Dyskinesia: Facts and Fancy. What does the MPTP Monkey Model Tell Us? <i>Paul J. Bédard, Baltazar Gomez Mancilla, Pierre Blanchette, Céline Gagnon and Thérèse Di Paolo</i>	134
Positron Emission Tomography in Parkinson's Disease <i>Barry J. Snow</i>	138
Deprenyl in Parkinson's Disease: Mechanisms, Neuroprotective Effect, Indications and Adverse Effects <i>Paul Vezina, Erich Mohr and David Grimes</i>	142
Synergistic Interactions of D1- and D2-Selective Dopamine Agonists in Animal Models for Parkinson's Disease: Sites of Action and Implications for the Pathogenesis of Dyskinesias <i>H.A. Robertson</i>	147
Sustained Release Antiparkinson Agents: Controlled Release Levodopa <i>Serge Gauthier and Donna Amyot</i>	153
The Place of the Dopaminergic Agonists in the Treatment of Parkinson's Disease: the View from the Trenches <i>David B. King</i>	156
Future Treatment of Parkinson's Disease <i>Joseph King Ching Tsui</i>	160

Acknowledgement

Publication of this special supplement of
the Canadian Journal of Neurological Sciences
was made possible
by the generous financial support of
SANDOZ CANADA INC.

Introduction

A Symposium on Parkinson's disease was held April 4 – 6, 1991, in L'Estérel, Québec. This conference was the third in a series sponsored by the Parkinson's disease Foundation of Canada and the Canadian Movement Disorder Group. As previously, the symposium was funded by an educational grant from Sandoz Canada Inc.

Important new observations presented in L'Estérel included evidence that deprenyl can "rescue" nigral dopaminergic cells after they have been damaged by MPTP, and the finding that direct injection of iron can elicit toxic injury to the substantia nigra. New concepts to emerge included a change in emphasis on the origin of levodopa induced dyskinesia from a pharmacodynamic to a pharmacokinetic mechanism.

The meeting was attended by 83 Canadian neurologists and neuroscientists. The symposium managed to combine the reporting of original observations with reviews of the current status of controversies in the areas of research and

treatment of Parkinson's disease. In addition, the conference was notable for the spirited discussions that took place between the speakers and their audience, and the extensive interaction between basic and clinical neuroscientists. In keeping with the tradition set by the previous two symposia, the papers presented at this meeting have been reviewed for publication in this special supplement of the Canadian Journal of Neurological Sciences.

Research on the etiology, pathogenesis and treatment of Parkinson's disease continues to generate new concepts and advances in therapy. This symposium provides a concise survey of points of interest in the laboratory and the clinic. The last decade has witnessed a spectacular growth of Canadian interest in Parkinson's disease, illustrated by the creation of twelve Movement Disorder Clinics across the country. The symposium reported here encourages us to expect that the momentum in this area of neuroscience will be sustained.

D.B. Calne