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Academia de Științe Medicale din România

snr
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AMITY UNIVERSITY

4TH EUROPEAN TEACHING COURSE on NEUROREHABILITATION

JUNE 26-28, 2014 | CLUJ-NAPOCA | ROMANIA

SCIENTIFIC PROGRAM

"MARINESCU" AUDITORIUM,
"IULIU HATIEGANU" UNIVERSITY OF MEDICINE AND PHARMACY
23 GHEORGHE MARINESCU STREET | 400337 CLUJ-NAPOCA | ROMANIA

4TH EUROPEAN TEACHING COURSE on NEUROREHABILITATION

WELCOME ADDRESS

This event is organized by the Foundation of the Society for the Study of Neuroprotection and Neuroplasticity, together with the Romanian Society of Neurology and "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania, and is endorsed, as the previous ones, by the World Federation of Neurorehabilitation (WFNR) and European Federation of Neurorehabilitation Societies (EFNRS).

After three successful past events, the meeting in Cluj will again present a platform for exchange of newest scientific information as well as providing space for teaching oriented workshops. We try to reach an audience of all colleagues with an interest in this steadily expanding and exciting field (physicians, nurses, therapists, basic scientists etc.)

A major topic will be to come to a resume where neurorehabilitation in Europe stands today and where future perspectives in science and education as well as in optimizing services shall go. The formats used in the meeting as well as the selected main thematic areas will certainly have a chance to be of interest to a wide audience.

DAFIN F. MUREȘANU

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Wolf Dieter Heiss /Austria
Volker Hömberg /Germany
Boris Mankovski /Ukraine
Dafin F. Mureşanu /Romania
Adriana Sarah Nica /Romania
Cristina Panea / Romania
Lăcrămioara Perju-Dumbravă /Romania
Cristian Dinu Popescu /Romania
Gabriel Prada /Romania
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Dafin F. Mureşanu /Romania

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Bogdan O. Popescu /Romania
Cristian Dinu Popescu /Romania

4TH EUROPEAN TEACHING COURSE on NEUROREHABILITATION

Course Venue

Marinescu Auditorium
"Iuliu Hatieganu"
University of Medicine and Pharmacy
Cluj-Napoca, Romania
23 Gheorghe Marinescu Street
400337 Cluj-Napoca, Romania

Scientific Secretariat

Society for the Study of Neuroprotection and Neuroplasticity
37 Mircea Eliade Street, 400364 Cluj-Napoca, Romania
Office phone: +40745255311
E-mail:office@ssnn.ro

Registration Desk

All materials and documentation will be available at the registration desk located at SSNN booth.
The staff will be pleased to help you with all enquiries regarding registration, materials and program. Please do not hesitate to contact the staff members if there is something they can do to make your stay more enjoyable.

Participants Registration Fee Includes:

Admission to all scientific sessions during the course.
Course materials (delegate bag, final program and abstract book etc.)
Admission to coffee breaks, lunches and the special event on the evening of Thursday, June 26th.

On-Site Registration

On-site registration will be processed on a first-come, first-served basis.
Priority will be given to pre-registered delegates.
Depending on the number of on-site registered delegates, availability of course bags may be limited.

Opening Hours - Registration

Thursday – 26th of June 2014

07:45 - 18:30

Friday – 27th of June 2014

07:30 - 17:00

Changes In Program

The organizers cannot assume liability for any changes in the course program due to external or unforeseen circumstances.

Mobile Phones

Participants are kindly requested to keep their mobile phones turned off while attending the scientific sessions in the meeting rooms.

Course Language

Course Language
The course language is English.
Simultaneous translation will be provided into Russian.

Currency

The official Romanian currency is RON.

Electricity

Electrical power is 220 volts, 50 Hz.
Two-prong plugs are standard.

Time

The time in Cluj-Napoca is Central European Time (GMT+2).

COURSE REGISTRATION

For any further information, please contact:

Doria Constantinescu (Mrs.)
Agency Manager

Perfect Travel
Cluj-Napoca, Romania, 33A Teleorman Street
Tel./fax: +40264 461047
E-mail: doria@perfecttravel.ro

CONGRESS FEES

Registration	480 EUR
Off site visit surcharge	65 EUR

ADDITIONAL OPTIONAL PACKAGES

Airport pick up package including dinner on arrival	75 EUR
Accommodation fee	235 EUR

SCIENTIFIC SECRETARIATE

The Society for the Study of Neuroprotection and Neuroplasticity
37 Mircea Eliade, 400364 Cluj-Napoca, Romania
Office phone: +40745255311
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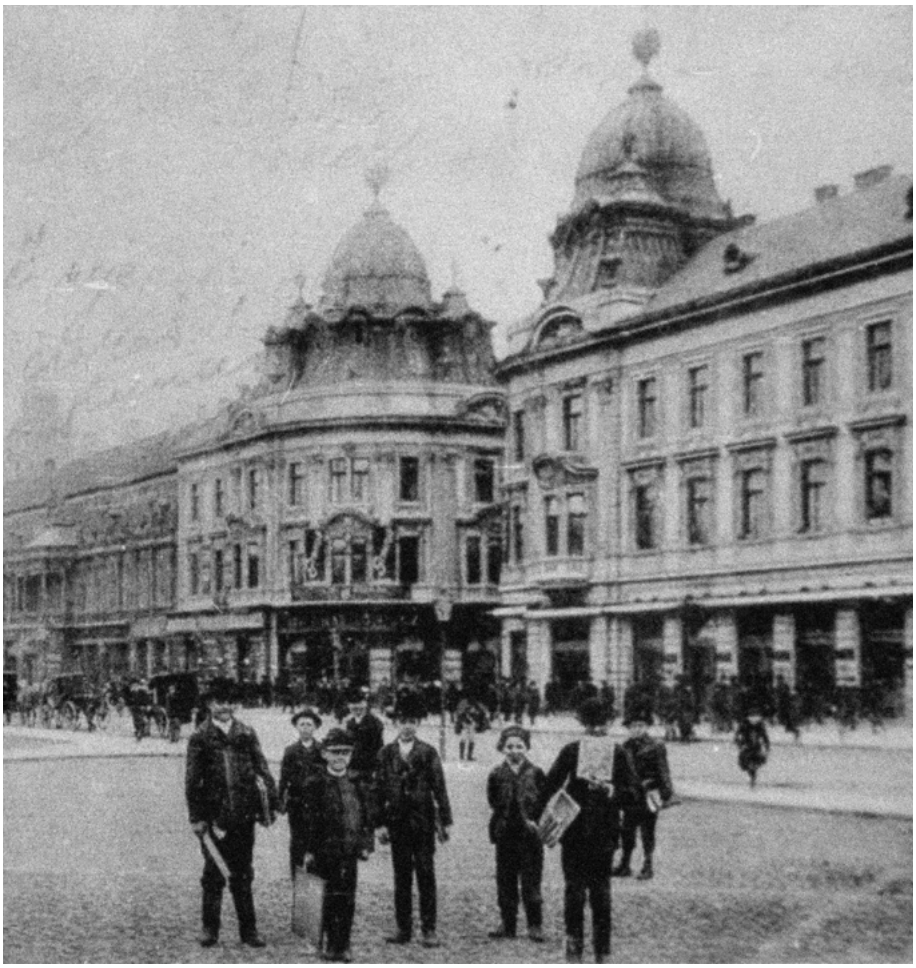


SCIENTIFIC PROGRAM

4TH EUROPEAN TEACHING COURSE on NEUROREHABILITATION

THURSDAY - 26TH OF JUNE

08:15 – 08:30	Welcome Address Dafin Mureșanu (Romania), Volker Hömberg (Germany), Anca Buzoianu (Romania), Ștefan Florian (Romania)
	SESSION 1
Chairmen:	Volker Hömberg (Germany), Dafin Mureșanu (Romania)
08:30 – 09:00	The concepts of evidence based medicine Volker Hömberg (Germany)
09:00 – 09:30	Is There a Chance for Clinical Research in Neurorehabilitation within the Framework of Evidenced-Based Medicine? Johannes Vester (Germany)
09:30 – 10:00	Advances in Neurorehabilitation Fundamentals – the Role of Neurotechnologies Dafin Mureșanu (Romania)
10:00 – 10:30	Basic principles of (motor) learning Volker Hömberg (Germany)
10:30 – 11:00	COFFEE BREAK

The course language is English. Simultaneous translation will be provided into Russian.

SESSION 2

Chairmen: Anton Àlvarez (Spain), Dana Boering (Germany)

11:00 – 11:30	The Role of Biological Molecules in Pharmacological Support of Neurorehabilitation Dafin Mureșanu (Romania)
11:30 – 12:00	Neuropeptides: A Multifunctional Treatment Option to Improve Recovery During Neurorehabilitation Anton Àlvarez (Spain)
12:00 – 12:30	Motor Rehabilitation: Training Techniques Volker Hömberg (Germany)
12:30 – 13:00	Motor Rehabilitation: Physical Therapy Volker Hömberg (Germany)
13:00 – 14:00	LUNCH

SESSION 3

Chairmen: Stephen Skaper (Italy), Volodymyr Golyk (Ukarine)

14:00 – 14:30	Sense and nonsense of using ICF in neurorehabilitation Volker Hömberg (Germany)
14:30 – 15:00	Imaging for Estimation of Outcome and Recovery After Ischemic Stroke Wolf Dieter Heiss (Germany)
15:00 – 15:30	Noninvasive Brain Stimulation in Treatment of Post-Stroke Aphasia Wolf Dieter Heiss (Germany)
15:30 – 16:00	Pain Management in Stroke Dana Boering (Germany)
16:00 – 16:30	COFFEE BREAK

SESSION 4

Chairmen: Wolf Dieter Heiss (Germany), Ioan Mărginean (Romania)

16:30 – 17:00 The Endoneurial Microenvironment: Anatomy, Pathophysiology and Therapeutic Target
Stephen Skaper (Italy)

17:00 – 17:30 Fatigue Assessment and Treatment in Parkinson 's Disease
Lăcrimioara Perju Dumbravă (Romania)

17:30 – 18:00 Neurorehabilitation in Parkinson`s Disease
Volodymyr Golyk (Ukarine)

18:00 – 18:30 Patient Safety in Neurorehabilitation
Adriana Sarah Nica (Romania)

18:30– 18:40 Closing remarks

20.30 Cultural Event followed by a Dinner Reception
at the National Theater Cluj-Napoca

FRIDAY - 27TH OF JUNE

SESSION 5

Chairmen: Ovidiu Băjenaru (Romania), Dafin Mureșanu (Romania)

08:00 – 08:30 Pulsatile Versus Continuous Dopaminergic Stimulation in Parkinson's Disease
Cristian Dinu Popescu (Romania)

08:30 – 09:00 The Concept of Integrated Multidisciplinary Approach in Parkinson's Disease Management
Mihaela Simu (Romania)

09:00 – 09:30 Recommendations for Clinical Diagnosis and Standardized Assessment in Parkinson`s Disease
Cristina Panea (Romania)

09:30 – 10:00 Continuous Dopaminergic Stimulation Therapy: Patient Selection, Management of Patients and Efficacy
Francesc Valldeoriola (Spain)

10:00 – 10:30 COFFEE BREAK

The course language is English. Simultaneous translation will be provided into Russian.

SESSION 6

Chairmen: Cristian Dinu Popescu (Romania), Heinrich Binder (Austria)

10:30 – 11:00 Current challenges in the diagnostic approach of the vertigo patient: a neurologist's perspective
Ovidiu Băjenaru (Romania)

11:00 – 11:30 Vestibular functional assessment and the most frequent peripheral vestibular disorders: BPPV, Vestibular neuritis, Meniere syndrome - otologist view
Sebastian Cozma (Romania)

11:30 – 12:00 Gait and Posture Beyond the Nervous System. What Neurologist should Know about Musculoskeletal Requirements
Heinrich Binder (Austria)

SESSION 7

Chairmen: Boris Mankovsky (Ukraine), Francesc Valldeoriola (Spain)

12:00 – 12:30 Neurological Complications in Diabetes: Balancing Between Foot and Head
Boris Mankovsky (Ukraine)

12:30 – 13:00 Thiamine Derivates – Multifaceted Therapeutic Potential in Neurorehabilitation
Cristian Dinu Popescu (Romania)

13:00 – 13:30 Antioxidant Agents- The Role of Ideal Antioxidants in Neurorehabilitation
Gabriel Prada (Romania)

13:30 – 14:30 LUNCH

SESSION 8

Chairmen: Ioan Onac (Romania), Adriana Sarah Nica (Romania)

14:30 – 15:00 Mobility Overview - The importance of Walking Ability in MS Patients
Cristian Dinu Popescu (Romania)

15:00 – 15:30 Pharmacological Treatment of Walking Impairments in Multiple Sclerosis
Mihaela Simu (Romania)

15:30 – 16:00	Rehabilitation in Multiple Sclerosis Angelo Bulboacă (Romania)
16:00 – 16:30	Goal Setting and Monitoring of the Rehabilitation Process Dana Boering (Germany)
16:30 – 17:00	Early Rehabilitation of Brain Injury: Between Urgency and Limitation Dana Boering (Germany)
17:00 – 17:10	Closing remarks
20:30	Farewell Dinner "Sun Garden" Restaurant

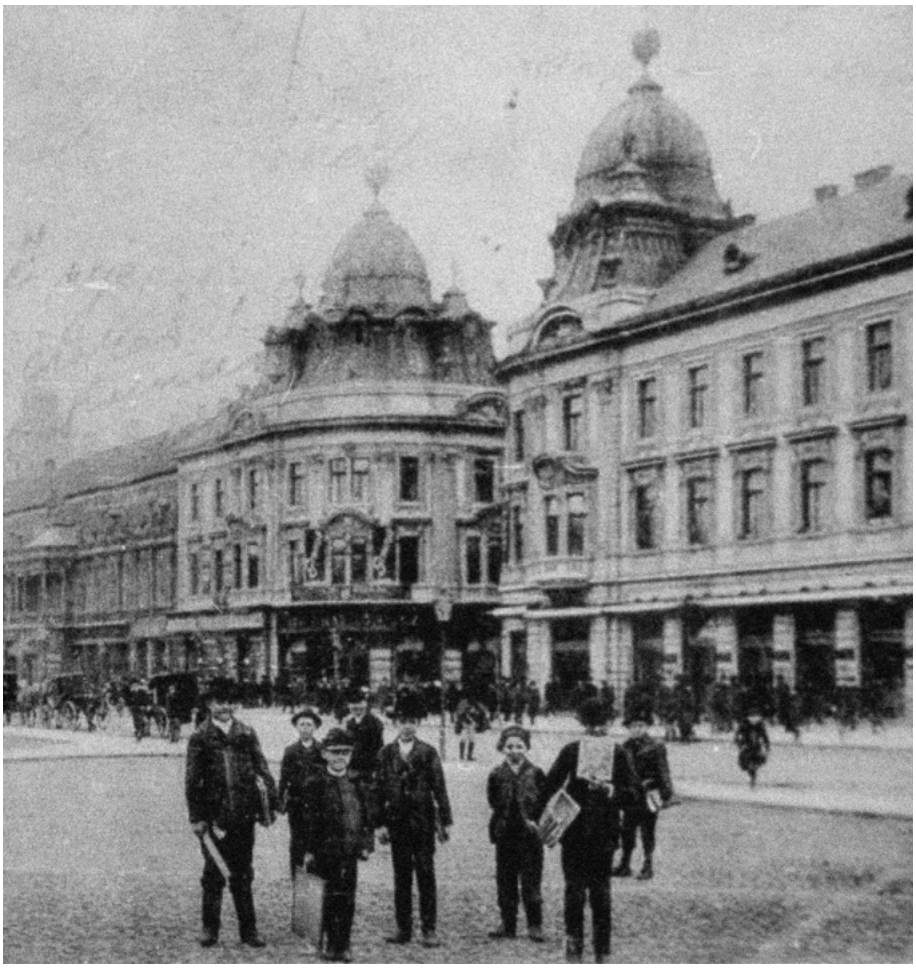
SATURDAY - 28TH OF JUNE

FORUM CONFERENCE ROOM

GOLDEN TULIP "ANA DOME" HOTEL
STR. OBSERVATORULUI 129, 400352, CLUJ-NAPOCA

08:00 – 10:00	Workshop - EU Project BMBS COST BM1101 ACTION – Romanian Network for the Study of Dystonia Moderator: Ovidiu Băjenaru
10:00 – 10:30	COFFEE BREAK
10:30 – 13:00	Workshop – Neurorehabilitation in Parkinson's Disease – the Caregivers' Perspective Moderators: Mihaela Simu & Aurora Constatinescu
13:00 – 14:00	LUNCH
90 min.	Visit at Regional Excellence Center in Neurorehabilitation – Rehabilitation Hospital 46-50 Viilor Street, 400437 Cluj-Napoca, Romania

The course language is English. Simultaneous translation will be provided into Russian.



ABSTRACTS

NEUROPEPTIDES: A MULTIFUNCTIONAL TREATMENT OPTION TO IMPROVE RECOVERY DURING NEUROREHABILITATION

ANTON Àlvarez[1,3]
Jesus Figueroa[1,2]
Dafin Muresanu[3]

1,3 Medinova Institute of Neurosciences, A Coruña, Spain;

2 Rehabilitation Department, University Hospital, Santiago de Compostela, Spain;

3 Department of Neurosciences, University of Medicine & Pharmacy 'Iuliu Hatieganu', Cluj-Napoca, Romania

Most of the "neuroprotective" therapies investigated to date in traumatic brain injury (TBI) and stroke failed to improve recovery probably because they used drugs targeted toward a single pathological factor, and both TBI and stroke involve multiple cellular and molecular pathogenic mechanisms. Many researchers propose now that treatment with multifunctional drugs constitutes a promising approach to enhance neurorecovery during rehabilitation.

Neurotrophic factors are pleiotropic agents with pluripotential activities on multiple molecular pathways and cellular processes that are relevant for TBI and stroke pathology and recovery. Neurotrophins and other trophic factor have well-established actions in regulating apoptosis and cell survival, angiogenesis, neurogenesis and neuroplasticity (cytoskeleton restructuring, dendritic sprouting and remodeling, and synaptogenesis); and are essential for restoring the integrity of the neurovascular unit and for the peptide modulation of periventricular neurogenic regions after TBI and stroke. Although trophic factors are good candidates for neuroprotection, its therapeutic use has several important limitations such as their rapid enzymatic inactivation and low uptake through the BBB. Therefore, we need to develop pleiotropic and multimodal peptidergic drugs acting on multiple pathophysiological pathways to induce neuroprotective effects, and having the capacity to stimulate brain repair and regeneration after injury.

According to current scientific evidence of the participation of peptide-mediated mechanisms in the processes of brain injury and repair, peptidergic drugs represent a multimodal therapy alternative to improve acute outcome and long-term recovery in TBI and stoke patients. Cerebrolysin is a multimodal peptidergic drug showing neuroprotective and neurorestorative properties. Preliminary studies indicate that treatment with Cerebrolysin might result in a faster clinical recovery, a shorter hospitalization time and a better long-term outcome in TBI patients. Recent studies also show that Cerebrolysin induces a faster recovery, enhances survival and improves clinical outcome in stroke patients.

The effects of Cerebrolysin on clinical and biological parameters during acute and post-acute TBI phases were evaluated in several randomized trials and in some exploratory studies. Results of these preliminary studies indicate that treatment with Cerebrolysin is associated to a faster clinical recovery of general (consciousness, severity), functional (cognitive and motor performance) and biological parameters (EEG activity, cerebral perfusion, oxidative stress) in TBI patients, which may result in a shorter hospitalization time and a better long-term outcome. Several clinical trials also demonstrated that Cerebrolysin improves motor functions, activities of daily living and cognitive performance after stroke; accelerates clinical recovery in patients treated with rt-PA; and enhances survival and clinical outcome in severe stroke patients. According to data available, there are no safety constrains for the use of Cerebrolysin at daily doses of 10-60 ml in TBI and stroke patients. Further validation of these promising findings in confirmatory RCTs is warranted. Long-term Cerebrolysin treatment might provide additional benefits on functional recovery during rehabilitation in TBI and stroke patients.

CURRENT CHALLENGES IN THE DIAGNOSTIC APPROACH OF THE VERTIGO PATIENT: A NEUROLOGIST'S PERSPECTIVE

OVIDIU BĂJENARU

University of Medicine and Pharmacy "Carol Davila", Bucharest, Romania

Director of the Department of Neurology, Neurosurgery and Psychiatry
Chairman and Head of Dept. Neurology - University Emergency Hospital, Bucharest, Romania

Vertigo is the most common cause of emergency consultations in the world. This syndrome is very sensitive but extremely etiological non-specific, related to the fact that the connections of the vestibular system to other major neuronal systems in the nervous system are extremely wide and complex, due to its extremely important functions in relation with the biological integrity of the organism: adjustment of the tonic muscle activity and postural body control, stabilization of the eyeballs position related to the reference environmental space, when the head is moving, allowing the stability of the images on the retina (VOR) and its dominant role in the subjective perception of stability during movement and space orietation of the head. In particular, apart to its role in the fast control of the dynamic mucle tone the cortical functions of the vestibular system are extremely important; these are related to the space orientation, perception of self-movement and stability in environmental space. As a consequence, impairment of this system's functions and structure due to a large variety of causes, make dizziness and vertigo to be common complaints (not independent disease entities) among patients seen by primary care physicians, neurologists and otolaryngologists (20 – 30% in the general population). The most common cause are peripheral vestibular disorders but also dizziness and vertigo manifest as clinical expression of central and peripheral nervous system disorders (~25% among patients with dizziness & vertigo), which prognostic and evolution are very different from benign disorders to most severe and life-menacing causes: cerebrovascular disorders (stroke, arterial diseases, vascular malformations), traumatic brain injury (mainly posttraumatic syndromes), multiple sclerosis, migraine, intracranial mass lesions, vestibular epilepsy, channelopaties (familial periodic ataxia), dysautonomic syndromes, sensory polyneuropathies, neurodegenerative diseases (e.g. Parkinson's disease, spino-cerebellar ataxias), metabolic and endocrine diseases (e.g. diabetes mellitus, hypothyroidism), blood hyperviscosity sds., iatrogenic (drugs, chiropractic manipulations, surgery), age-related visual vertigo and psychiatric disorders. The main reason of this presentation is to emphasize the practical and therapeutical importance of the etiologic differential diagnosis for any vertiginous and vestibular syndrome, before any therapeutic decision, including the neurorehabilitation program which have also to be personalized, according to the potential evolution and etiologic treatment for each patient.

GAIT AND POSTURE BEYOND THE NERVOUS SYSTEM. WHAT NEUROLOGIST SHOULD KNOW ABOUT MUSCULOSKELETAL REQUIREMENTS.

HEINRICH BINDER

Landsteiner Institute for Neurorehabilitation and Space Medicine
Vienna, Austria

When assessing gait, it is important to understand that a problem affecting one body part can lead to problems elsewhere. A deformity or/and dysfunction in one part will be compensated in another. Due to the complex interactions of human body parts in movement, it is necessary not to confuse cause and effect. Because of different therapeutic approach it is important to distinguish.

Hardly any neurological disease comes along with no locomotor disorder. This pertains stroke, extrapyramidal disorders, spinal cord injury, cerebral palsy to name but a few. The respective typical abnormal gait and posture stresses spine, different joints, ligaments and muscles and is ultimately responsible for chronification of pathological adaptations, degenerative changes and consequent additional complaints which themselves can additionally affect negatively gait and posture. Therefore a vicious cycle is incidental.

The situation is mirror inverted concerning primary functional and/or pathological changes of spine, joints and muscles as pillar, movable parts and movers. Remember the enormous number of patients with false posture, spondylarthrosis, disc protrusion/ prolapse and resulting radicular complaints and signs right up to spinal lesions like cervical myelopathy.

A neurorehabilitative active neurologist should be able to distinguish the central from musculoskeletal share of impairment by respective assessment to reach the appropriate therapeutic decision.

GOAL SETTING AND MONITORING OF THE REHABILITATION PROCESS

DANA BOERING

St. Mauritius Therapieklinik Meerbusch, Germany

Goal Setting is a key component of the rehabilitation process and, over the recent years, the evidence base for goal setting in rehabilitation has grown; in rehabilitation, goal setting is used by health care professionals to focus the intervention, improve rehabilitation outcomes, evaluate rehabilitation outcomes, meet funders' requirements and enhance patient autonomy. There are short term goals/low level goals, which are the steps along the way to long term goals or higher level goals.

To promote patient participation in this process and encourage collaboration, the use of formal goal- setting procedures in health care has been recommended.

The talk will discuss the theoretical background of the goal setting process focusing on both goal setting theory and social cognitive theory of self-regulation, present different formal goal setting procedures, position goal setting in the context of the rehabilitation process and highlight benefits and difficulties of increased participation (collaborative) goal setting as well as the necessity of feedback, markers and milestones for performance increase by increased commitment and motivation.

PAIN MANAGEMENT IN STROKE

DANA
BOERING

St. Mauritius Therapieklinik Meerbusch, Germany

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. “If pain were assessed with the same zeal as other vital signs are, it would have a much better chance of being treated properly. We need to train doctors and nurses to treat pain as a vital sign. Quality care means that pain is measured and treated (James Campbell, American Pain Society)

The talk will give a short overview on the pathophysiology of pain, on therapy goals in acute and chronic paint and focus mainly on the multidisciplinary pain management : assessment of pain emphasizing patients with impaired communication and/or cognition and giving an overview on the different documentation protocols available for clinical use, standardized clinical pain examination protocols, pharmacological and non-pharmacological therapy) of different pain forms during acute stroke and over the post stroke phase, giving detailed insight in the pathophysiology of central post stroke pain and hemiplegic shoulder pain as well as its pharmacological and non-pharmacological therapies.

EARLY REHABILITATION OF BRAIN INJURY: BETWEEN URGENCY AND LIMITATION

DANA BOERING

St. Mauritius Therapieklinik Meerbusch, Germany

Traumatic brain injury is the number one cause of mortality and disability in young adults in modern western societies. About 1, 6 million patients with TBI are admitted to hospitals in Europe, another 1, 6 millions in the USA each year.

There is growing scientific evidence that individuals with severe TBI who receive early rehabilitation beginning in the acute medical level of care have better outcomes than those who do not. Moreover, recent study results suggest that reduction of medical problems and thus increasing medical stability during early rehabilitation correlates with time in rehabilitation, not with time since injury, outlining the beneficial role of active medical management provided in the early rehabilitative phase.

Yet early rehabilitation of severe TBI patients remains very challenging. Prerequisite of it is a complex setting providing multidisciplinary expertise, systematic monitoring, sophisticated diagnostic resources, and specialty consultants available. It´s cornerstone remains minimizing medical complications and enhancing recovery by pharmacological, electrophysiological and neurorehabilitative interventions.

Recent research encompasses systematically the high frequency and complexity of medical complications in severe TBI patients admitted to early rehabilitation and their time course. Medical assessment of the complications requires special expertise, because these patients have a range of complications specific for this patient group. Therefore neurologic, neurosurgical as well as rehabilitative expertise is needed to tailor the management strategy which allows medical stabilization and rehabilitation as well. Besides specific neurorehabilitative interventions including verticalization, physiotherapy, tracheal tube management and structured sensory stimulation, there is an expanding body of evidence about the effectiveness of pharmacologic neuromodulation employed to improve arousal, promote behavioral incentive, stimulate speech, and reduce agitation: CNS stimulants as well as CNS depressants.

New aspects of nonpharmacologic neuromodulation like central thalamic deep brain stimulation and tDCS to enhance arousal as well as its application, additional to neuromodulating medication, based on the growing knowledge concerning their interactions, need further research.

There are still many open questions about optimal timing of neuromodulating interventions and the selection of the most appropriate treatment; perhaps future research will enable us to distinguish genetic marker for treatment responder, similar to oncologic treatment strategies.

Thus, between urgency and limitation, early rehabilitation of severe TBI is an efficient first step in the long chain of recovery after injury.

NEUROREHABILITATION IN MULTIPLE SCLEROSIS

ANGELO BULBOACĂ

University of Medicine and Pharmacy "Iuliu Hatieganu", Cluj Napoca, Romania

Multiple sclerosis (MS) is a chronic progressive disease which is leading cause of handicap in young subjects. Symptoms that contribute to loss of independence and restriction in social activities lead to continuing decline in quality of life. Despite therapeutic advances, functional impairments have significant consequences.

Our aim is to give an updated overview on the neurorehabilitation (NR) measures and on the management of symptoms in MS. An increasing number of journal articles describing the value of the many neurorehabilitation interventions that can be used throughout the course of MS.

An integrated team of healthcare professionals is necessary to increasing independence and quality-of-life. In the first time, we review treatment of the main symptoms of MS : fatigue, cognitive impairment ,depression, weakness, spasticity, ataxia, affective disorders, pain, urinary incontinence, balance, mood, sexual function. The team can help prevent complications and secondary disabilities, while increasing patient safety. Physical exercise – standardized and individualized- is safe and should be encouraged for people with MS. The use of some standardized assessment tools is recommended. The physical therapy evaluation can include a broad overview . Second, we discuss comprehensive multidisciplinary rehabilitation and specific treatment options. NR should be adapted depending on: the individual patient's needs and type and degree of disability .

Individualized programs elaborated by a multidisciplinary team are the key to success inlong-term NR of MS patients.

THE MOST FREQUENT PERIPHERAL VESTIBULAR DISORDERS: BPPV, VESTIBULAR NEURITIS, MENIERE SYNDROME - OTOLOGIST VIEW

SEBASTIAN COZMA

University of Medicine and Pharmacy "Grigore T. Popa" Iasi, Romania

Clinical Rehabilitation Hospital Iași, Audiology and Vestibulology Department

Aim: The vestibular pathology has a wide spectrum of etiologies and many cases need an interdisciplinary approach. Either in emergency situations as well as in chronic balance diseases the patient needs a correct and complete evaluation of the vestibular function and of the hearing, many peripheral vestibular syndroms having a cochlear component. A complete balance and auditory evaluation will help for the right diagnostic and the best orientation of the patient to the specific appropriate medical treatment in ENT, neurology and other connected specialties.

This presentation shows an algorithm for the evaluation and diagnosis of vestibular diseases from otology point of view. Since often the subjective clinical tests have a limited contribution to the diagnostic in balance pathology, the objective tests represent the gold standard for vestibular evaluation, offering important informations about the topography of the lesions: peripheric, central or mixt vestibular damages.
The most frequent peripheral vestibular diseases will be discussed: benign paroxysmal positional vertigo, Meniere syndrome, vestibular neuritis and vestibular schwannoma.
Vestibular affected patients that cannot recover their vestibular abilities could benefit of the vestibular rehabilitation program in order to improve the quality of life.

Method: We will present an up-to-date practically and clinically focused diagnostic methodology, which should be applied in the audiological and vestibular assessment protocol. This includes the most modern and clinical useful tools: dynamic computerized posturography, videonystagmography, vestibular caloric stimulation, vestibular evoked myogenic potentials (cervical and ocular), tympanometry, otoacoustic emissions, auditory evoked potentials, auditory steady state response etc. All these tests should be clinically used on the principle of "puzzle cochleo-vestibular assessment" and cross-check measurements. Despite all evidence-based vestibulary and hearing tests which enable a topolesional diagnosis, we still lack valuable tools to identify some pathologic conditions either peripheral or central.

Conclusions: The main purpose of the complete vestibular and auditory assessment is to optimally identify as soon as possible the vestibular or cochleo-vestibular lesions and to establish when is possible the etiology of the acustico-vestibular disease in order to assist in the best way the patient to recovery the vestibular function or to compensate it by vestibular rehabilitation.

Key words:
Vestibular assessment, balance pathology.

NEUROREHABILITATION IN PARKINSON`S DISEASE

VOLODYMYR GOLYK
Ipatov A.V.

State Institution "Ukrainian State Institute of Medical and Social Problems of Disability Ministry of Public Health of Ukraine";

Public Organization "Ukrainian Society for Neurorehabilitation" Radyansky bstr. 1a, 49027, Dnipropetrovs'k, Ukraine

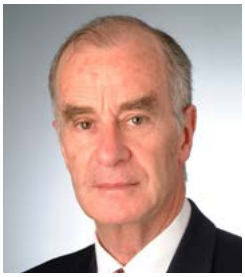
Parkinson`s people worldwide named Parkinson`s disease (PD) as an "unexpected journey". The problem is inevitably spreading into global society, communities and families leading to medical, healthcare, psychological and financial expenses. PD is positioned as a disorder with gradual functional deterioration over the time (group 4 according to Barnes M., 2003) with possible need for multidisciplinary neurorehabilitation. Living with PD moved the patient through certain phases of disease awareness such as uncertainty, learning the disease and assimilation with PD. The general difference from traditional neurorehabilitation (stroke, traumatic brain injury etc.) is progressive course of the disease with accumulation of functional deficit both motor and non-motor. Thus the philosophy of neurorehabilitation interventions in PD is not functional improvement but achieving of maximal independence state within disease based frames and in case major dependency – new roles development with maximum adaptation to present circumstances.

Physical therapy directions depend from disease stage (Hoehn and Yahr grading system), treatment use (etc. levodopa with fluctuating "on" - "off" periods, treatment complications), mobility range, cognitive decline levels. Contraindications should also be accounted.

Standard ICF based goal setting technique with specific evaluation of functions (primary – secondary impairments), activities (limitations in...) and participation (participation problem in...) should be used.

Physical therapy takes place in the primary health care practice, the patient's home, a rehabilitation center, a nursing home or a hospital. It is very important to involve the caregiver in the treatment, as well as taking on- and off-periods into account when planning treatment.

NONINVASIVE BRAIN STIMULATION IN TREATMENT OF POST-STROKE APHASIA



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Aphasia, the most disabling functional defect after ischemic stroke, affects more than a third of all stroke victims. It improves during the first 4 weeks in one-third of patients and during the first 6 months in approximately half of them. Early and intensive speech and language therapy (SLT) is the only effective treatment to date but usually is limited in duration and intensity. Therefore, improved and additional treatment strategies are required to improve recovery of language functions.

Poststroke aphasia results from the lesion of cortical areas involved in the motor production of speech (Broca´s aphasia) or in the semantic aspects of language comprehension (Wernicke´s aphasia). Such lesions induce an important reorganization of speech/language-specific brain networks due to an imbalance between cortical facilitation and inhibition. In fact, functional recovery is associated with changes in the excitability of the damaged neural structures and their connections. Two main mechanisms are involved in poststroke recovery: the recruitment of perilesional regions of the left hemisphere in case of small lesions and the acquisition of language processing ability in homotopic areas of the nondominant right hemisphere when left hemispheric language abilities are severely impaired.

The purpose of NICS application in the neurorehabilitation of aphasic patients is to act on specific networks involved in the pathophysiology of language processing and to promote adaptative cortical reorganization after stroke. The rehabilitation of poststroke aphasia refers to two different strategies: the recruitment of perilesional cortical regions in the dominant (left) hemisphere on one hand and the development of language ability in the nondominant (right) hemisphere on the other hand using either rTMS or tDCS. The compensatory potential of the nondominant hemisphere is probably limited and the recovery from poststroke aphasia seems to be more effective in patients who recover left hemisphere networks and left IFG function.
Therefore, the majority of NICS trials in poststroke aphasia aimed to reinforce the activity of brain regions in the left hemisphere. This goal can be achieved by using an excitatory NICS protocol (either intermittent TBS [iTBS] or anodal tDCS) to reactivate the lesioned area or an inhibitory NICS protocol (either low-frequency rTMS or cathodal tDCS) to reduce activities in the contralesional homologous area.

Most conventional rTMS studies employed an inhibitory paradigm (low-frequency stimulation) for the stimulation of the contralesional right IFG (pars triangularis, BA 45) aiming to reduce right hemisphere hyperactivity and transcallosal inhibition exerted on the left Broca's area. However, most studies concerned isolated clinical cases without any control condition. Improvement of speech performance mainly consists of enhanced fluency in various naming test. A recent controlled rTMS trials gave further evidence of potential therapeutic benefit of low-frequency rTMS delivered to the right IFG in chronic aphasic patients, but only one pilot study enrolled patients in the postacute phas and combined rTMS with speech and language therapy and followed the activation patterns by PET.

In our controlled proof-of-principle study 30 patients with subacute post-stroke aphasia were randomized to a 10 day protocol of 20 minutes inhibitory 1Hz rTMS over the right triangular part of the posterior inferior frontal gyrus (pIFG) or sham stimulation followed by 45 minutes of speech and language therapy (SLT). Activity in language networks was measured with O-15-water positron emission tomography during verb generation before and after treatment. Language performance was assessed using the Aachen Aphasia Test battery (AAT).

The primary outcome measure, global AAT score change, was significantly higher in the rTMS group (t-test, P=0.003). Increases were largest for subtest naming (P=0.002) and tended to be higher for comprehension, token-test and writing (P<0.1). Patients in the rTMS group activated proportionally more voxels in the left-hemisphere after treatment than before (difference in activation volume index, AVI) compared to sham treated patients (t-test, P=0.002).There was a moderate but significant linear relationship between AVI change and global AAT score change (r2 = 0.25, P=0.015).

Conclusions: 10 sessions of inhibitory rTMS over the right pIFG in combination with SLT significantly improves language recovery in subacute ischemic stroke and favors recruitment of left hemispheric language networks. The results of this study indicate that inhibitory 1Hz rTMS over the right pIFG in combination with SLT improves recovery from post-stroke aphasia and favors recruitment of left hemisphere language networks. The proposed protocol sets the stage for larger multicenter trials to further confirm the effectiveness of NBS and to specifically address the influence of lesion location, stimulation site, activation pattern and possibly timing of NBS therapies. Finally, studies directly comparing different NBS modalities are required to determine the most effective and economical treatment strategy under clinical conditions.

IMAGING FOR ESTIMATION OF OUTCOME AND RECOVERY AFTER ISCHEMIC STROKE

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Neuroimaging modalities may help to assess functional outcome and to predict the efficacy of rehabilitation in individual patients additionally to functional assessment scales such as NIHSS and others.

CT: The most widely used imaging procedure in acute stroke is CT, especially for differentiation between hemorrhagic and ischemic stroke, for localization of the lesion and for decision making regarding administration of potentially risky stroke therapies as thrombolysis. ASPECTS (the Alberta Stroke Program Early Computed Tomography Score) is a measure to quantify ischemic changes on CT within the territory of the middle cerebral artery (MCA) and can help select patients for acute intravascular treatment.
MRI: With diffusion-weighted imaging (DWI), the size of the lesion can be outlined early and DWI lesion volume significantly increased the power of prediction models. Diffusion tensor imaging (DTI) measures may also be used to predict outcome. The connectivity in networks as assessed by DTI is more important for outcome and recovery than the extent of the primary structural lesion.

Assessment of brain blood supply and cerebral perfusion

Inclusion of information from CT angiography contributed significantly more to outcome prediction than the ASPECTS score. Evidence of large vessel occlusion is crucial for improving outcome by early endovascular interventions. The final size of an infarct is also influenced by the extent and quality of collateral circulation to the affected brain area. The presence of robust collateral flow is best visualized by conventional angiography, but CT angiography as a non-invasive alternative has better spatial resolution than transcranial Doppler or MR angiography and can depict leptomeningeal collaterals.

The visualization of disturbed interaction in functional networks and of their reorganization in the recovery after focal brain damage is the domain of functional imaging modalities such as PET and fMRI.

PET: Mapping of neuronal activity in the brain can be primarily achieved by quantitation of the regional cerebral metabolic rate for glucose (CMRGlc). Quantitative imaging of cerebral blood flow (CBF) is based on the principle of diffusible tracer exchange, using 15O-labeled water.

PET detects and, if required, can quantify changes in CBF and CMRGlc accompanying different activation states of brain tissue. The regional values of CBF or CMRGlc represent the brain activity due to a specific state, task or stimulus in comparison with the resting condition, and color-coded maps can be analyzed or correlated to morphological images.

fMRI measures signals that depend on the differential magnetic properties of oxygenated and deoxygenated hemoglobin, termed the blood-oxygen-level-dependent

(BOLD) signal, which gives an estimate of changes in oxygen availability. The amount of deoxyhemoglobin in small blood vessels depends on the flow of well-oxygenated arterial blood (CBF), on the outflow of O2 to the tissue (CMRO2) and on the cerebral blood volume (CBV). fMRI images map changes in brain function and can be superimposed on the anatomical image.

Motor and somatosensory deficits

In most fMRI or PET studies involving active or passive movements, a widespread network of neurons was activated in both hemispheres. During recovery from hemiparesis, a dynamic bihemispheric reorganization of motor networks takes place. Ipsilateral cortical recruitment seems to be a compensatory cortical process related to the lesion of the contralateral primary motor cortex. The unaffected hemisphere actually inhibits the generation of a voluntary movement by the paretic hand. This effect of transcallosal inhibition can be reduced by repetitive transcranial magnetic stimulation (rTMS).

Post-stroke aphasia

Studies of glucose metabolism in aphasia after stroke have shown metabolic disturbances in the ipsilateral hemisphere caused by the lesion and contralateral hemisphere caused by functional deactivation (diaschisis). Patients with an eventual good recovery predominantly activated structures in the ipsilateral hemisphere.

Combination of repetitive transcranial magnetic stimulation (rTMS) with activated imaging

Activation studies in the course of recovery of post-stroke aphasia suggest various mechanisms for the compensation of the lesion within the functional network: restoration of the original activation pattern, activation of areas around the lesion (intrahemispheric compensation) and reduction of transcallosal inhibition causing activation of contralateral homotopic areas. rTMS is a non-invasive procedure to create electric currents in discrete brain areas which, depending on frequency, intensity and duration, can lead to transient increases (with higher frequencies) and decreases (with lower frequencies) in excitability of the affected cortex. The role of activation in the right hemisphere for residual language performance can be investigated by combining rTMS with functional imaging, e.g. PET. Counteraction by rTMS of contra-lateral active areas might open a new therapeutic strategy for post-stroke aphasia.

SENSE AND NONSENSE OF USING ICF IN NEUROREHABILITATION

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Medicine today uses a standardized international classification of diseases (ICD). In acute medicine treatment and diagnoses of a particular disease entities,which are defined nosologically are the most important points.

As already mentioned in module 1 in rehabilitation medicine the problem is some different: Here in the foreground of interest of physicians and patients is the ability of the patient to do particular things i.e. to find descriptors for the actual abilities, function and chances of participation for the patient.

To make also such a classification comparable on an international level and find sort of a "micro language" to describe such differences in function and abilities the world health organization (WHO) has suggested to use a standardized international classification of function (ICF).

The ICF differentiates

1. Body functions and structures
2. Activities
3. Participation

In the course of rehabilitation there is a transition from the acute medical treatment of body structures and body functions towards a more functional activity and participation related view. Within the ICF nine chapters of different activities can be differentiated from elementary mobility to major live areas as social, civic and religious actvities.

Within each domain (e.g. mobility) activities can be further sub defined into sub categories:

It will be demonstrated how ICF classification can be institute to describe rehabilitation process. Furthermore it is critically discussed in how far the micro language of ICF really reflects the patients ambitions and needs in the rehabilitation process.

It is important to note to that the ICF tries to reflect a bio- psycho- social model of disease rather than a pure biological understanding.

THE CONCEPTS OF EVIDENCE BASED MEDICINE

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As a mentioned in the earlier modules the International Classification of Functions (ICF) has become sort of a gold standard for the classification of functions,activities and participation . In this module practical exercises will be done how to extract from the ICF a reasonable matrix for the definition of rehabilitation goals.

It is important in the process of rehabilitation that goals can be clearly and operationally defined in the interaction between physicians and the patient as well as relatives. An attempt will be made to give real live oriented examples for definition of goals for various domains within the ICF framework.

Historically the concept of evidence based medicine going back to the French encyclopedist of the 18th century and the first medical application of such an approach will be shown. The different levels of evidence will be introduced and the general properties of randomized controlled trials as a key element of the modern concept of evidence based medicine will be demonstrated.

In addition a critical epistemiological l discussion about the usefulness of this concept of evidence based medicine in neuro rehabilitation in contrast to concepts of individualized medicine will be presented and the design of Number of 1 studies as an alternative to groip designs will be introduced. Finally a systematic review of treatments based on evidence based medicine which today are widely used in neurologic rehabilitation will be reviewed.

BASIC PRINCIPLES OF (MOTOR) LEARNING

For the rehabilitation of motor function an elementary understanding about the processes of motor learning is important. Within the last decade there has been a dramatic change in the paradigm of motor rehabilitation concepts and techniques.

In this module elementary aspects of motor learning especially of learning by repetition and feedback will be demonstrated.Also the key behaviorial and psychological basic science elements contributing to our modern understanding of motor learning will be described. Furthermore the neurobiological foundation of motor learning process as well as the brain areas involved in learning by doing, imagery and imitation will be discussed.

Finally examples will be given in how far knowledge about motor learning principles in general over the last two decades has been implemented into reasonable motor retraining strategies such as the forced use approach or the use of auditory pacing (e.g. neurological music therapy).

Students will also be invited to practical exercises in designing “new” possible motor rehabilitation strategies based on elementary knowledge about motor learning.

MOTOR REHABILITATION:TRAINING TECHNIQUES

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This lecture will summarize the most important motor training techniques and strategies in neurorehabilitation and critically discuss their application according to individual patients`problems

Evidence based techniques (e. forced use training,treadmill training etc) which follow elementary learning rules will be contrasted to conventional physiotherapeutic schools such as Bobath,Vojta ,PNF etc.

Also the differential therapeutic usefulness of mechanical therapy devices (“robots”) will be demonstrated.

MOTOR REHABILITATION:PHYSICAL THERAPY

This lecture will summarize the most important physical therapeutic technique used in neurorehabilitation for improvement of motor function and discuss their differential clinical usefulness for special patients`problems.

This list will include the most useful electrical and magnetic stimulation methods,aspects of hydrotherapy and application of heat and cold.

These techniques will also be classified according to their impact on neuromodulation .

NEUROLOGICAL COMPLICATIONS IN DIABETES: BALANCING BETWEEN FOOT AND HEAD

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Diabetic neuropathy is the commonest complication of the disease affecting peripheral somatic and autonomic nerves and central nervous system.

Distal symmetrical polyneuropathy

presents in 50% patients with diabetes mellitus. It is the strongest risk factor for foot ulcers and amputation. It is associated with retinopathy and nephropathy. The prospective study indicates that, apart from glycemic control, the incidence of neuropathy is associated with potentially modifiable cardiovascular risk factors, including a raised triglyceride level, body-mass index, smoking, and hypertension. The treatment includes disease-modifying treatment (correction of neurological deficit, pathogenetic treatment) and symptoms (mainly pain) relief.

Brain is frequently overlooked target of diabetic complications. Manifestations of cerebral damage in diabetic patients are cognitive impairments and dementia, depression, cerebrovascular disorders. Cognitive impairments in patients with diabetes are characterized by relatively mild-to-moderate impairments, slow progression, difficulties to diagnose in routine clinical practice, difficulties to distinguish from age-related decline of cognitive function. Diabetes and depression aggravate the risk of development and the course of each other. Diabetes mellitus is an independent risk factor for ischemic stroke. The correction of the major risk factors leads to significant reduction of stroke risk in patients with diabetes mellitus.

ADVANCES IN NEUROREHABILITATION FUNDAMENTALS – THE ROLE OF NEUROTECHNOLOGIES

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"Iuliu Hatieganu",
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Neurological disorders, especially stroke, traumatic brain injuries, as well as degenerative diseases, represent a leading cause of long term disability all over the world. Many advances have been done in the treatment of these pathologies, mostly confined to acute phase, especially in stroke (e.g. thrombolysis, mechanical recanalization, augmentation of perfusion, etc). The need to identify therapeutic methods, able to limit brain damage or enhance recovery of motor and cognitive functions through neuroprotective and neurorestorative mechanisms when administered at later time points, is desirable. There are many animal and human studies trying to elucidate the cellular and molecular mechanisms of plasticity of the nervous system. Neurorecovery is the positive outcome that produces clinically relevant results with immediate functional and late structural effects.

Neurorecovery depends on the adaptive plasticity of the undamaged nervous tissue, and of the non-affected elements of functional network. The initial size, location of injury and neurocircuitry involved, are the main factors that determine the extent of recovery in brain lesions.

Neurorecovery can be enhanced by pharmacological intervention, physical and cognitive activity, electromagnetic stimulation, psychological support, environmental stimulation or any demonstrated combinations of these factors capable of improving the patient's condition after brain injuries. From the pharmacological perspective, it is clear that the focusing on molecules that are capable of mimic the function of endogenous molecules with multimodal and pleiotropic neuroprotective effects is the best approach in neurorecovery, especially when they are associated with intensive physical, cognitive and emotional training.

A better understanding of the mechanisms underlying the neuroplasticity will reflect in a more efficient and comprehensive treatment. This presentation will focus on the validity of different methods able to stimulate neurorecovery after brain lesions with a special highlight on neurotechnologies contribution in this field in the past decade.

THE ROLE OF BIOLOGICAL MOLECULES IN PHARMACOLOGICAL SUPPORT OF NEUROREHABILITATION

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This presentation briefly reviews some of the mechanisms involved in the pathogenesis of neurological diseases, i.e. damage mechanisms, and their interactions and overlap with protection and reparatory processes (i.e., endogenous defense activities). A relationship between damage mechanism (DM) and endogenous defense activity (EDA) regarding therapy principles will also be described.

Currently, it is difficult to find the correct therapeutic approach for brain protection and recovery, especially because we do not fully understand all of the endogenous neurobiological processes, the complete nature of the pathophysiological mechanisms and the links between these two categories. Moreover, we continue to use a simplistic and reductionist approach in this respect.

Endogenous neurobiological processes, such as neurotrophicity, neuroprotection, neuroplasticity and neurogenesis, are central to protection and recovery and represent the background of EDA.

The biological reality of the nervous system is far more complex. In fact, there is an endogenous holistic process of neuroprotection and neurorecovery that should be approached therapeutically in an integrated way.

The current tendency to exclusively frame drug activity in terms of single mechanisms and single focus effect might distract from other paradigms with greater explanatory power and hinder the development of more effective treatment strategies. A change of concept is required in pharmacological brain protection and recovery. This presentation will also highlight some prospective considerations including an integrated pharmacological approach, focusing on drugs with multimodal activity and pleiotropic neuroprotective effect which are biological drugs, rather than single mechanism drugs, which usually are chemical drugs.

The development of the concept of brain protection and recovery in stroke will be also highlighted. Relevant clinical trials in the field will be commented as well.

PATIENT SAFETY IN NEUROREHABILITATION

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Patient safety is one of the most important subject in connection with dynamic clinic and somatic function evolution for neurologic patient. For each neurologic patient is mandatory to evaluate this subject because of it's importance in the prevention program. It also represents a special interlink with psycho-behavioral, social, economic and financial consequences. When is analised patient safety during neurorehabilitation program must be mentioned and underlined the errors from medical point of view and the influence connection factors.

Who is responsabil for medical errors and patient safety in neurorehabilitation?
- Of course, medical system, including interdisciplinary / multidisciplinary medical team, infrastructure, respect for procedures and medical activities, medical network, information and communication in medical field on the same level or between different sectors (medical, administration, financial, IT). All this complex activity is focused on neurorehabilitation patient and from the beginning taking into account patient safety – that's why a lot of professional groups are involved in it, begining with rehabilitation team from Ambulatory or Hospital to the Ministry of Health Care, Medical Assurance, Universities of Medicine and Medical Colegge.

- But not only medical system is responsible for errors of neurologic patient safety! The actors who are also involved in the neurorehabilitation program include family, friends, society, non-governamental organizations and mass-media groups.

Also, the subject is spread and have a very closed relationship with patient's assessment, history and physical examination, communication, clinic (symptomatic, physiopatologic) and somatic function goals, therapeutic program (including pharmacological and non-pharmacological tools). The most frequent errors are the consequences of impaired cognition and communication, the presence of polypathologies and polypharmacy and also instability of neurologic evolution of patient and limited support system. Comorbidities for a neurologic patient in rehabilitation department means to be prepared to identify immediately the risc of adverse effects. In fact, the steps of rehabilitation program must be adapted and personalized for functional therapy in connection with heart, respiratory, metabolic and cognitive level. Also, must take care for fall prevention, pressure ulcers, hospital infections and deconditioning syndrome.

Educational program including patient, family and society is a very important and special tool to identify and prevent some of the errors involving neurorehabilitation patient safety. This program must be developed and adapted to the particularities of patient and family's background (age, language, culture, beliefs). To have a good response from time to time it is mandatory to have a feedback and also to develop clinical research.

RECOMMENDATIONS FOR CLINICAL DIAGNOSIS AND STANDARDIZED ASSESSMENT IN PARKINSON`S DISEASE

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Therapeutic options for Parkinson's disease (PD) are no more limited to symptomatic agents. There is growing evidence that individuals with mild to moderate Parkinson's disease can also benefit from neurorehabilitation that targets flexibility, strengthening and cardiovascular conditioning. Early treatment of PD is contingent upon early and accurate diagnosis of the disease, which can be challenging because there are no biomarkers or neuroimaging or other clinical tests available to confirm the diagnosis. PD diagnosis is currently based on the presence or absence of various clinical features and the experience of the treating physician. A definitive diagnosis can be made only after autopsy. Moreover, the signs and symptoms present in early PD can resemble those of a number of other movement disorders, particularly other forms of parkinsonism, such as multiple system atrophy, drug-induced parkinsonism, and vascular parkinsonism, as well as diffuse Lewy body disease and essential tremor. Nevertheless, diagnosis of PD based on clinical features and response to treatment can be achieved with a fairly high level of accuracy, particularly when made by a physician specializing in movement disorders. The presentation covers the recommendations for the clinical diagnosis of PD, the standardized assessment (movements, cognition, sleep, functioning) based on clinical scales applied immediately upon diagnosis and continue throughout the course of the disease – all serving to adequate symptomatic and physical treatment.
Key words: Parkinson`s disease, diagnosis, clinical scales

FATIGUE ASSESSMENT AND TREATMENT IN PARKINSON'S DISEASE

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Fatigue is reported frequently by patients with neurologic disorders. In Parkinson's disease (PD) one third of patients report fatigue as their most disabling symptom. The first step in assessing fatigue is a clear definition and a differentiation between fatigue and fatigability. Fatigue can be considered a subjective sensation, whereas fatigability is rather an objective change in performance.

It is obvious that PD patients can suffer concomitantly from other diseases that can secondarily cause fatigue, therefore one has to determine, when possible if fatigue is primarily due to PD or not.

In order to evaluate the severity of symptoms and to assess the efficiency of interventional methods, objective fatigue rating scales are needed. The scales recommended to be used in clinical studies are: the Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F) scale, Parkinson Fatigue Scale (PFS-16), the Multidimensional Fatigue Inventory, the Fatigue Severity Scale (FSS). Each of them has strong points, but also disadvantages when applied.

To date there are treatment options for many of the sleep disturbances in PD patients but fatigue seems to be only scarcely improved by available medication.

Modafinil, Methylphenidate, caffeine, memantine and sodium oxybate were tested as possible treatment options for fatigue in PD. Some studies have shown a reduction of the fatigue measured by the clinical global impression of fatigue in patients treated with modafinil. Just one study succeeded to demonstrate and objective improvement of motor fatigability. Methylphenidate administered three times a day improved fatigue, as shown in one study. Its risk for abuse in patients with dopamine dysregulation syndrome or impulse control disorders has limited its use. Memantine failed in influencing fatigue, as demonstrated in a pilot study. Sodium oxybate could be efficient against fatigue but it has two main disadvantages: it can suppress respiration and has an abuse potential. In conclusion fatigue, as a frequently encountered symptom in PD patients, has to be carefully assessed by means of objective scales and confounding factors should be, if possible eliminated. The medical treatment of fatigue is promising but not yet satisfactory. Further research in the field is need and possible nonmedical therapies may be added.

THIAMINE DERIVATES – MULTIFACETED THERAPEUTIC POTENTIALIN NEUROREHABILITATION

CRISTIAN DINU POPESCU

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Benfotiamine is a lipid-soluble thiamine precursor having much higher bioavailability than genuine thiamine. Growing body of evidence revealed that benfotiamine alleviates the severity of diabetic complications such as neuropathy, nephropathy and retinopathy by inhibiting the formation of advanced glycation end products (AGEs). Benfotiamine prevents the progression of diabetic complications by increasing tissue levels of thiamine diphosphate, which enhances the transketolase activity that directs the precursors of AGEs to pentose phosphate pathway, resulting in the reduction of tissue levels of AGEs. Other beneficial effects of benfotiamine include improvement in cardiomyocyte contractile dysfunction in experimental diabetes mellitus, reduction in neuropathic pain and improvement in experimental postischaemic healing. Moreover, benfotiamine has been shown to reduce oxidative stress in a mechanism unrelated to its anti-AGE property. In addition to its beneficial effects in preventing the progression of diabetic complications, benfotiamine has been demonstrated to prevent the induction of vascular endothelial dysfunction, which suggests the novel role of benfotiamine in improving the vascular functional regulation.

Numerous studies revealed few more additional therapeutic benefits of benfotiamine. Administration of benfotiamine reduced vibration perception, motor function and overall scores of alcoholic polyneuropathy that were significantly improved in an 8-week randomized controlled study.

Throught its high bioavalability compared with classical thiamine, benfotiamine efficiently compensates vitamin B1 deficiencies caused by alcoholism, nutritional deficiencies, chronic diseases, intoxications.

MOBILITY OVERVIEW - THE IMPORTANCE OF WALKING ABILITY IN MS PATIENTS

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Multiple sclerosis - a chronic demyelinating disease – is the most common cause of disability in young and middle-aged adults, excepting traumatic injury.

Among a wide range of functional impairments determined by multiple sclerosis, one of the most disruptive is mobility impairment, which can be influenced by other various deficits and symptoms associated with the disease. As component of mobility, patients considered walking impairments as the most concerning aspect related to their disease, followed in importance by visual function and thinking/memory. Different studies proved the importance and the impact of walking on MS patients.

Thus, almost two-thirds (64%) experienced trouble walking, and 94% found it at least somewhat disruptive to their overall daily life, with 63% finding it disruptive or very disruptive. Overall, 70% of people with difficulty walking reported it to be the most challenging aspect of MS.

The impact of mobility impairment on employment and quality of life is also very significant.

These facts sustain that assessing mobility is an important part of MS patient approach. Using simple walking tests and validated questionnaires, in addition to a complete history and examination, are efficient ways of monitoring mobility in a clinical settings. Various tests are used to measure mobility impairment in patients with MS – clinically rated or patient reported.

Early recognition of mobility impairment and subsequently early intervention can improve patient mobility, work retention and quality of life.

ANTIOXIDANT AGENTS- THE ROLE OF IDEAL ANTIOXIDANTS IN NEUROREHABILITATION

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Alpha-lipoic acid (ALA), or Thioctic Acid, is a naturally occurring dithiol compound synthesized enzymatically in the mitochondrion from octanoic acid. LA is a necessary cofactor for mitochondrial α-ketoacid dehydrogenases, and thus serves a critical role in mitochondrial energy metabolism. ALA is an ideal antioxidant which acts as a scavenger for reactive oxygen species, regenerator for other antioxidants (vitamin C, glutathione, and alpha-tocopherol) and chelator of free metal ions.

ALA is both water and fat soluble and therefore cross biological membranes easily, thus reaching all the compartments of the cell.

Beneficial effects are achieved with low micromolar levels of ALA, suggesting that some of its

therapeutic potential extends beyond the strict definition of an antioxidant. Current trials are investigating whether these beneficial properties of ALA make it an appropriate treatment not just for diabetes, but also for neurodegenerative diseases, atherosclerosis, insulin resistance, neuropathy and ischemia reperfusion injury. Moreover, ALA represents a potential therapeutic agent for the vascular endothelium. It is apparent that ALA is clinically effective in mitigating complications of diabetes and potentially, other vascular diseases. We have found some evidence which emphasize the potential for ALA to maintain or improve neurological disorders (e.g. Alzheimer's disease, multiple sclerosis), limit progression of cardiovascular disease, mitigate chronic inflammatory conditions, as well as improve or maintain antioxidant/ detoxification defenses that otherwise decline with age.

THE CONCEPT OF INTEGRATED MULTIDISCIPLINARY APPROACH IN PARKINSON'S DISEASE MANAGEMENT

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Parkinson' s disease management is becoming more and more challenging in terms of optimizing the older, newer and emerging therapeutical options. As the ultimate goal of any therapy patient's side view is an improvement in his/hers health related quality of life, it is mandatory to centrally place the patient and expectations in the core of any management plan . A Parkinson's disease patient may be in an early , moderate or advanced clinical stage of the disease subjected to various therapeutical regimens. Therapy targets primarily the motor symptoms (as the core of the disease), nevertheless said symptoms are wrapped in layers of nonmotor symptoms and comorbidities that both complicate and individualize each case. Therefore a change in the paradigm of patient care from segregated multidisciplinary to integrated multidisciplinary approach has emerged as a far realistic and efficient option. We will discuss these concepts and provide as an example the multidisciplinary approach implemented in the Romanian centers for patients in advanced stages of the disease treated with the Levodopa/ Carbidopa intrajejunal infusion pump.

PHARMACOLOGICAL TREATMENT OF WALKING IMPAIRMENTS IN MULTIPLE SCLEROSIS

Multiple sclerosis (MS) is a debilitating disease that impacts many aspects of patients' lives, including walking. Walking impairment hinders patients' ability to perform activities of daily living, and reduces health-related quality of life (HRQoL).

In MS, damaged myelin exposes potassium channels in the intermodal membrane of axons allowing potassium ions to leak. This weakens the electrical current sent through nerves. Prolonged-release (PR)-fampridine is believed to block intermodal potassium channels, thereby increasing conduction along damaged nerves, and resulting in improved walking ability.

Improvement in walking was demonstrated in clinical trials, which showed consistent improvements in walking speed on the Timed 25-Foot Walk (T25FW) in patients treated with PR-fampridine versus patients treated with placebo. A post hoc analysis of these studies demonstrated that a higher proportion of PR-fampridine Timed-Walk Responders had improved functional walking capacity (assessed using the Modified Functional Walking Categories) compared with Timed Walk non-Responders or patients treated with placebo. Based on baseline SF-36 scores, patients with MS had impaired HRQoL compared with the normal population. Treatment with PR-fampridine was associated with statistically significant improvements in a broad range of physical activities and mental health status as early as 12 weeks after initiation through 48 weeks of treatment, as measured by the individual items and scores of the MSIS-29 PHYS and SF-36 MCS respectively. Treatment with PR-fampridine was also associated with improvements in muscle strength and spasticity.

PR-fampridine is indicated for the improvement of walking in adult patients with multiple sclerosis with walking disability (EDSS 4.0-7.0). PR-fampridine can be used alone or in combination other symptomatic treatments and with disease modifying therapies, including immunomodulatory drugs.

Existing clinical evidence for the efficacy of PR-fampridine in improving walking in MS is now confirmed with the demonstration of sustainable benefits in real-world settings measured by patient-reported outcomes.

THE ENDONEURIAL MICROENVIRONMENT: ANATOMY, PATHOPHYSIOLOGY AND THERAPEUTIC TARGET

STEPHEN D. SKAPER

Department of Scienze del Farmaco, Università degli Studi di Padova, Italy

The endoneurial microenvironment, delimited by the endothelium of endoneurial vessels and a multi-layered ensheathing perineurium, is a specialized milieu intérieur within which myelinated and unmyelinated axons, associated Schwann cells and other resident cells (fibroblasts, mast cells, and microvessels surrounded by pericytes) of peripheral nerves function. Regulation of the endoneurial microenvironment is achieved by two specialized interfaces: blood-nerve barrier (or blood-nerve interface) formed by endoneurial microvessels, and the perineurium. The endothelium and perineurium restrict as well as regulate exchange of material between the endoneurial microenvironment and the surrounding extracellular space. Input to and output from the endoneurial microenvironment occurs via blood-nerve exchange and convective endoneurial fluid flow. If capillary permeability to albumin increases slightly, endoneurial albumin concentration will rise and thus draw more fluid from the vascular compartment into endoneurial interstitium. The resulting endoneural edema will elevate endoneurial hydrostatic pressure, which can negatively impact nerve conduction. From this perspective, pathophysiological changes of the nerve microenvironment can be view as a consequence of altered endoneurial homeostasis. Within this context, mast cells merit attention. Mast cells are tissue resident immune cells that participate in a variety of allergic and other inflammatory conditions. In most tissues, mast cells are found in close proximity to nerve endings of primary afferent neurons that signal pain (i.e. nociceptors) and also within the endoneurium. Activation of mast cells causes the release of a plethora of mediators (e.g. histamine, serotonin, heparin, proteases, pro-inflammatory cytokines, eicosanoids, chemoattractants) that can activate these nociceptors and promote pain. Further, mast cell activation can provoke edema in nervous tissues and, conceivably, contribute to the dynamic nature of the blood-nerve interface including nerve conduction block and neuropathic pain. Moreover, mast cell action can be amplified via interaction with microglia. Inhibiting mast cell (and microglia) activation could thus be of therapeutic benefit in peripheral neuropathy. This will be discussed in terms of the N-acylethanolamines, a class of naturally occurring lipid signalling molecules, and N-palmitoylethanolamine in particular, which is produced on-demand within the cell's lipid bilayer and has been shown to possess anti-inflammatory, analgesic and anti-convulsant properties.

CONTINUOUS DOPAMINERGIC STIMULATION THERAPY: PATIENT SELECTION, MANAGEMENT OF PATIENTS AND EFFICACY

FRANCESC VALLDEORIOLA

Service of Neurology, Institut Clínic de Neurociències, Hospital Clínic i Provincial, Barcelona, Spain

Parkinson's disease (PD) is a devastating, progressive disorder that responds favorably to therapeutic doses of levodopa, its gold standard therapy. The phase of the disease (early, middle, or advanced) largely determines the type of treatment. Initially, there is good response to medication and adjuvant therapeutic strategies but, after several years, motor and non-motor complications develop. These are produced in part owing to erratic gastric emptying, leading to irregular absorption and fluctuating plasma levels of levodopa, and hence an unstable response. At this point, clinical fluctuations are gradually more difficult to control and, therefore, patients' quality of life deteriorates.

In recent years, a novel gel form of levodopa/carbidopa (Duodopa®) has enabled infusion through percutaneous endoscopic gastrostomy (PEG) directly into the duodenum. This system avoids the gastric step, hence enhancing absorption of the drug and favoring stable plasma levels of levodopa. Dosing of Duodopa is adjusted to the needs of each individual patient and is delivered continuously throughout the day. Duodopa is used as monotherapy. It is given inside the upper intestine via a small tube inserted directly into the first part of the small bowel, or duodenum. The unique delivery system, with a programmable pump, allows the physician and patient to individually tune the delivery of active ingredients, suspended as stable gel from a cassette worn outside the body. Better control of body movements can be achieved, resulting in many patients becoming more functional in their daily lives. The advantages of this approach have since been considered in several clinical studies that will be reviewed, as well as practical consideration for management of patients with therapy and suggestions for adequate candidate selection.

IS THERE A CHANCE FOR CLINICAL RESEARCH IN NEUROREHABILITATION WITHIN THE FRAMEWORK OF EVIDENCED-BASED MEDICINE?

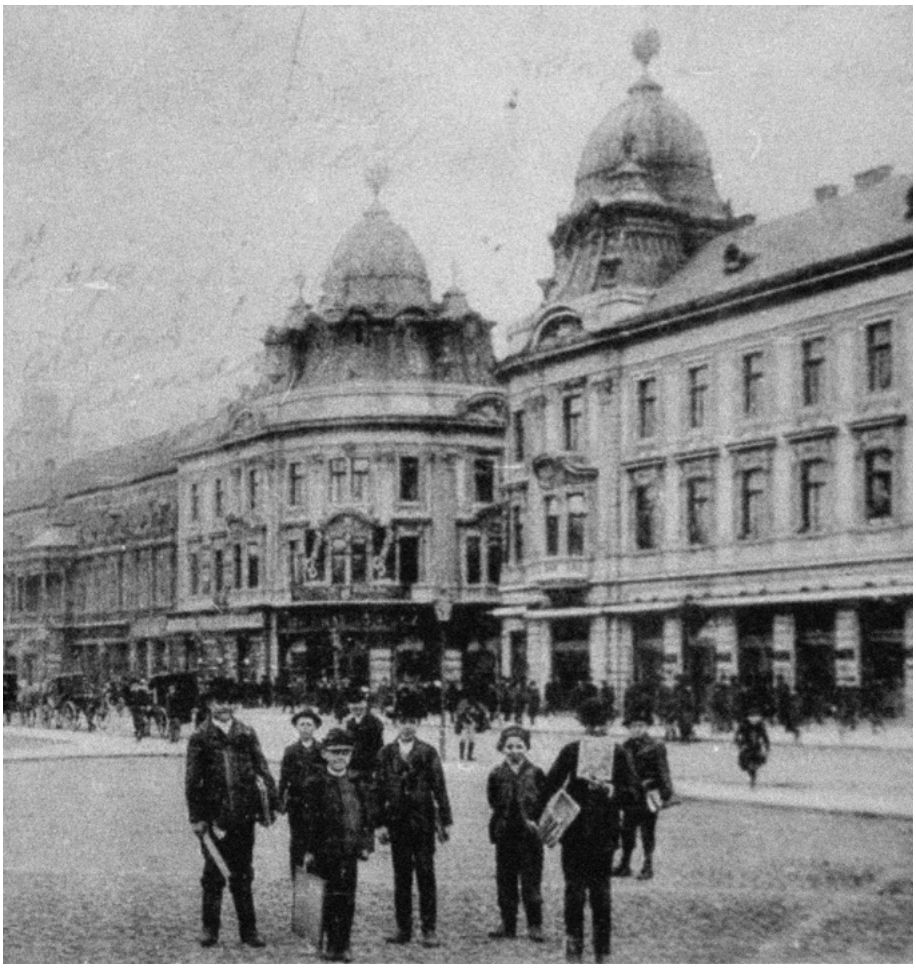
CLASSIC AND NEW APPROACHES

JOHANNES C. VESTER

Senior Consultant
Biometry and
Clinical Research

idv - Data Analysis and
Study Planning,
Germany

Evidence-based practice knocks on the door of clinical research in neurorehabilitation. The clinical trial is the mechanism for comparing and testing therapeutic interventions to determine their effect in human subjects and thus their value in rehabilitation practice (Terrin, 2003, Behrman 2013). But how are the chances to improve therapeutic concepts within the demanding framework of evidenced-based medicine? Classic approaches based on the single criterion paradigm and modern approaches based on the multidimensional approach are discussed with examples from different fields of neurorehabiliation.



CURRICULUM VITAE

ANTON ÀLVAREZ
/Spain

Medical Doctor (M.D.), University of Santiago de Compostela (1987)
Diploma of Specialist in Neuroendocrinology, University of Santiago de Compostela (1988)
Graduate in Psychology, University of Santiago de Compostela (1988)
Doctorate in Psychiatry, University of Santiago de Compostela (1988-1990)
Resident Research Fellow of the Ministry of Education and Science (1988-1992)
Department of Psychiatry, Santiago University (1988-1991)
Madrid Complutense University (1992)
Psychiatry Doctor (PhD), Department of Psychiatry, Madrid Complutense University (1997)

Dr. Àlvarez has 22 years experience in Basic and Clinical Research on Alzheimer's disease.

He was involved in more than 150 research projects, including projects funded by Public Institutions, pharmaceutical R&D studies, industrial and R+D+I projects, epidemiological studies and two projects funded by the European Comunity: (1) MimoVax:

Alzheimer's disease treatment targeting truncated AB40/42 by active immunisation (an STREP -Specific Targeted Research Projects- Project approved through the Six Framework Programme of the European Community to develop and test a vaccine for Alzheimer's disease). Period: 2006-2010. (2) BIOMED-PL-950523-European Concerted Action on Pick's Disease. Period: 1995-1998.

As a result of the research activity developed during this period, Dr. Àlvarez published more than 120 scientific articles in national and international journals and books. In addition, Dr. Àlvarez is actively involved in several scientific forums of his specialty (Congresses, Research Groups, Scientific Journals and Associations).

OVIDIU BĂJENARU
/Romania

1983 : M.D. at the Faculty of Medecine of University of Medecine and Pharmacy "Carol Davila" Bucharest
1989 : specialist in neurology, confirmed by the Ministery of Health of Romania
1993 : Ph.D. at the University of Medecine and Pharmacy "Carol Davila" Bucharest
1999 (since) : Professor of Neurology at the University of Medicine and Pharmacy " Carol Davila" Bucharest, Chairman and Head of the Neurology Department of the University Hospital of Emergency Bucharest
2000-2004 : Vice-Dean of the Faculty of Medecine - University of Medecine and Pharmacy "Carol Davila" Bucharest
2001 - 2013 : President of the Romanian Society of Neurology
since 2013 - : Honorary President of the Romanian Society of Neurology
2003 – 2009 : member of the Scientific Committee of ECTRIMS
2004 - 2009 : Member of the Executive Committee of the European Society of Neurology
2008 (since) : Romania official delegate in UEMS – EBN (Board of Neurology)

*sept. 2010: elected Sectretary of the Executive Committee of UEMS-EBN

2011 (since): Director of Department of Neurology, Neurosurgery and Psychiatry of the University of Medicine and Pharmacy "Carol Davila" Bucharest

Post graduate training :
1992 - 1994 : post graduate training in clinical neurology and functional investigations of the nervous system at University " Rene Descartes"(Paris)

Fields of interest for the scientific research
- stroke, dementia and neurodegenerative diseases (in particular Alzheimer and Parkinson's disease), multiple sclerosis
- more than 300 scientific papers published and reported in different national and international scientific meetings, 5 medical books and monographies (published in Romania), co-author (1 chapter) to the "International Neurology - A Clinical Approach", Wiley-Blackwell, 2009; Principal Investigator in 12 research grants from the Romanian National Council for Science and Research, Country Principal Investigator in an International Program of Research for genetic factors in stroke patients; Country Principal Investigator – in more than 30 international, multicentric clinical trials;
Principal Investigator of the research site – in more than 30 international and national multicentic trials

HEINRICH BINDER
/Austria

EDUCATION:

1965 - 1972	Faculty of Medicine at the University Vienna MD since (promotion on) 1972, June 6th
1972 - 1978	University Hospital for Neurology, graduated in Medical Specialist for Neurology and Psychiatry
9/1982	Docent for neurology, a title corresponding to PhD
since 1988	Professor for Neurology, University Vienna founding member of the Austrian Society for Neurorehabilitation
5/1989	Head of the Neurological Hospital "Maria Theresien-Schlössel"
1994-2007	Head of Ludwig Boltzmann Insitute for Restorative Neurology and Neuromodulation
Since 2008	Deputy Head of Landsteiner Institute for Neurorehabilitation and Space Medicine
since 2002	Head of the Neurological Center, Otto Wagner Hospital, Vienna. Main focus: Patients with severe neurological/ neuropsychological deficits and invasive neurorehabilitation methods

currently
President of
- Austrian Society for Neurorehabilitation (OEGNR)
- European Federation NeuroRehabilitation Societies (EFNRS)

Member of
- Management Committee of the World Federation NeuroRehabilitation (WFNR)
- Managing Board of the International Danube Symposium
- Editorial Board of "Journal of Medicine and Life":

Chairman of
- Special Interest Group/WFNR "Spinal Cord Injury"
- Special Interest Group/WFNR "Early Rehabilitation"
- Scientific panel/EFNS "Brain recovery and Rehabilitation"
- Special Branch / International Danube Symposium: "NeuroRehabilitation"

Main topic of research: Neurorehabilitation, brain injury, spinal cord injury, vegetative state/ apallic syndrome (more than 140 publications)

DANA BOERING
/Germany

Education:
1. Secondary School I. Slavici Arad, Romania
2. Medical School: Facultatea de medicina si Farmacie I.M.F. Cluj- Napoca, Romania

Academical qualifications:
1. Dr. medic : I.M.F. Cluj Napoca 1981
2. German acknowledgement as Dr. med. 1987
3. Specialty qualification: Neurologist 1994
4. Further specialty qualification: Neurorehabilitationist 2001, Neurophysiologist 2002

Employment:
St. Mauritius Therapieklinik Meerbusch since 2002

Professional appointments, scientifical activities:
1994-2002 Collaboration with the University of Essen in the field of plasticity after stroke, with an emphasis on the role of theerebellum in motoric learning tasks
Since 2002 Collaboration with the University of Düsseldorf in the field of plasticity after stroke
2009 Collaboration with the Coma Science Group Liege/Belgium
2010 Collaboration with the Neuroradiology of the Wake University Winson- Salem U.S.A. in a study on network properties of DOC patients

ANGELO BULBOACĂ

/Romania

Angelo Corneliu Bulboaca is Professor of Neurology at University of Medicine and Pharmacy of Cluj Napoca and Chief of Clinical Department of Neurology in the Rehabilitation Hospital Cluj. Born in February, 22 1950, he graduated University of Medicine and Pharmacy of Cluj Napoca in 1976. Professor Bulboaca is member of Romanian Society of Neurology affiliated to European Society, International Neuropathology Society, American Academy of Neurology, and Vice-president of the Romanian Society for the Study of Neuroprotection and Neuroplasticity. Domains of interest include vascular cerebral pathology, multiple sclerosis, degenerative pathology, muscular pathology. He published 41 papers in country and abroad and is author in two monographies, co-author in a student's course and co-author in a monography. He participates also in 6 international studies as investigator.

SEBASTIAN COZMA
/Romania

2002 – present: ENT specialist
2008: PhD with "MAGNA CUM LAUDE", ENT – Clinico-electrophysiological correlations in sensorineural hearing loss.
2009 – present: Lecturer in ENT Department, Faculty of Medicine, University of Medicine and Pharmacy "Grigore T Popa" Iași, Romania
1998 – present: ENT MD – Clinical Rehabilitation Hospital Iași, Romania
2006 – present: Head of Audiology and Vestibulogy Department, Clinical Rehabilitation Hospital Iași, Romania
2007 – present: Coordinator of Neo-natal universal hearing screening program in Iași, Romania
2002-2003 –Interuniversitary Diploma „The comunication pathology and audio-phonology in adult" in Lyon – France

Internships and courses completed in the field - selection:
1. Internship in October 2002-July 2003 in Audiology and Vestibulogie service under the guidance of Prof. Dr. Lionel Collet Edouard Herriot Hospital in Lyon, France - University Claude Bernard 1
2. Vertigo Masterclass - Prof. H. Kingma, March 2007 - Maastricht University, Netherlands
3. Electrophysiology Masterclass II, III, IV - Cochlear Training and Education Centre, December 2007, Belgium (course accredited by the British Academy of Audiology)
4. Vertigo Academy International - November 2012, Antalya, Turkey

Invited Speaker - selection:
1. Otolaryngology National Conference With International Participation - 27 to 30 June 2013, Oradea - Baile Felix. - Vestibular Pathology in Otolaryngology practice - Meniere's Disease
2. 2nd Meeting of European Academy of ORL-HNS and CE ORL-HNS - Objective assessment of hearing in children - instructional course - Nice, France, April 27 to 30, 2013
3. EAONO - European Academy of Otology and Neurootology - Neurelec Symposium - Consensus in Auditory Implants: Innovations For Low Traumatique Surgery - Surgical and audiological outcomes in Digisonic ® SP Binaural user - Bratislava, Slovakia, September 1, 2012
4. Otology 2012 - Conference - "Objective diagnosis of hearing loss: Clinical Correlations in auditory-electrophysiological assessment" - 5 to 6 October 2012, Lodz, Poland

Published articles – selection:
1. Vaerenberg B, Smits C, De Ceulaer G, Zir E, Harman S, Jaspers N, Tam Y, Dillon M, Wesarg T, Martin-Bonniot D, Gärtner L, Cozma S, Kosaner J, Prentiss S, Sasidharan P, Briaire JJ, Bradley J, Debruyne J, Hollow R, Patadia R, Mens L, Veekmans K, Greisiger R, Harboun-Cohen E, Borel S, Tavora-Vieira D, Mancini P, Cullington H, Ng AH, Walkowiak A, Shapiro WH, Govaerts PJ. Cochlear implant programming: a global survey on the state of the art. ScientificWorldJournal. 2014 Feb 4;2014:501738. (ISI)
2. Rădulescu L, Cozma S, Niemczyk C, Guevara N, Gahide I, Economides J, Lavieille JP, Meller R, Bébéar JP, Radafy E, Bordure P, Djennaoui D, Truy E. Multicenter evaluation of Neurelec Digisonic(®) SP cochlear implant reliability. Eur Arch Otorhinolaryngol. 2013 Mar; 270(4):1507-12. (ISI, impact factor 1,287 –Pubmed)
3. Rădulescu L, Mârţu C, Birkenhäger R, Cozma S, Ungureanu L, Laszig R. Prevalence of mutations located at the dfnb1 locus in a population of cochlear implanted children in eastern Romania. Int J Pediatr Otorhinolaryngol. 2011 Nov 7. revistă cotată ISI, factor de impact 1,210 (PubMed).
4. Hung Thai Van, Sebastian Cozma, Florent Boutitie, François Disant, Eric Truy, Lionel Collet. The pattern of auditory brainstem response wave V maturation in cochlear implanted children. Clinical Neurophysiology 2007, 118: 676 – 689, Imprint ELSEVIER, ISSN 1388-2457, revistă cotată ISI, factor de impact 2,468, (PubMed).
5. Corina Dima Cozma, Andreea Salontay, Cristina Ghiciuc, Sebastian Cozma, Francesca Romana Patacchioli. Salivary Cortisol Fluctuations And Hyperglicemic Stress In Patients With Abdominal Obesity. Romanian Journal of Oral Rehabilitation, Vol. 4, No. 2, May - July 2012: 17-21.
6. Benecke H, Pérez-Garrigues H, Bin Sidek D, Uloziene I, D K, Sondag E, Theeuwes A; OSVaLD investigators. Collaborators (531) - Boari L, Chaves AG, (...), Cotulbea S, Cozma S, Cucoş L (...), Marco AJ. Effects of betahistine on patient-reported outcomes in routine practice in patients with vestibular vertigo and appraisal of tolerability: experience in the OSVaLD study. Int Tinnitus J. 2010;16(1):14-24

VOLODYMYR GOLYK
/Ukraine

Education
September 1, 1988 – June 24, 1994 Dnipropetrovs'k Medical Institute c. Dnipropetrovs'k, Ukraine.
Medical Doctor, Honors Diploma, Specialty- general medicine.

Residency:
August 1, 1994 – June 28, 1996 Dnipropetrovs'k State Medical Academy, Neurology & Neurosurgery Department, Dnipropetrovs'k, Ukraine.
Doctor – specialist, Specialty – neurology

Clinical fellowship:
September 1, 1996 – August 31, 1998
Dnipropetrovs'k State Medical Academy, Neurology & Neurosurgery Department, Dnipropetrovs'k, Ukraine.
Cerebrovascular neurology

PhD program – Neurology
April 1999-May 2003,
Kharkiv Medical Academy of Postgraduate education
Ph.D., Speciality – Neurology

Internship – Neurology (Alberto Vilar Internship)
March 02-24, 2004
Christian Doppler Landeskliniken Neurology, Salzburg, Austria

Training – Expert Spasticity Management training course
July 19-20, 2010,
University Hospital of North Staffordshire, North Staffordshire Rehabilitation Centre,
Stoke on Trent, UK

Training – Update on Management of Vertigo and Vestibular Disorders
May 19-20, 2011
University of Provence, Marseille, France

Training – Vestibular Disorders and Vertigo Treatment Masterclass
June 16, 2012
Maastricht University Medical Centre, Maastricht, Netherlands

Publications 210 scientific publications

Professional Affiliation
Member,
European Neurological Society (1999),
Movement Disorders Society (2007)
Ukrainian Anti-Stroke Association (2007),
Regional Society of Clinical Neurology, Dnipropetrovs'k Region, Ukraine.

WOLF DIETER HEISS

/Austria

Wolf-Dieter Heiss, born 31.12.1939 in Zell am See, Austria, graduated in medicine from the University of Vienna, Austria, in 1965. He achieved his training in neurology, neurophysiology, psychiatry and nuclear medicine at the University hospital in Vienna and spent research fellowships at the MIT, Cambridge, USA, the Physiological Institute in Stockholm, Sweden, the Department of Physiology of SUNY, Buffalo, NY and the Department of Neurology of the University of Minnesota, Minneapolis, USA. 1976 he was appointed associate professor at the Department of Neurology of the University of Vienna. In 1978 he became director of the Center for Cerebrovascular Research of the Max Planck Institute for Brain Research and of the Department of Neurology of the City Hospital Cologne-Merheim, Germany. 1981 he was appointed as director at the Max Planck Institute for Neurological Research. 1985 – 2005 he was professor of neurology and chairman of the Department of Neurology of the University of Cologne and director of the Department of General Neurology at the MPI in Cologne. He was president of the International Stroke Society 1992-96, was on the board of directors of the Society for Cerebral Blood Flow and Metabolism, deputy editor of the Journal of Cerebral Blood Flow and Metabolism and at present is associate editor of the Journal of Nuclear Medicine and section editor of Stroke. He was chairman of the program committee of the European Federation of Neurological Societies (EFNS) 1998 - 2001 and was president of the EFNS 2001 – 2005. Since 2005 he is Visiting Professor at the Danube University in Krems, Austria, and since 2009 Adjunct Professor at the McGill University in Montreal, Canada.

His significant portfolio of scientific articles includes 617 papers indexed on Web of Knowledge-ISI, rating a Hirsch index of 63.

In 2013 he became Associated Professor of the Department of Neurosciences, Faculty of Medicine, University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca, Romania.

VOLKER HÖMBERG
/Germany

MEDICAL DIRECTOR

St. Mauritius Therapy Hospital Meerbusch

PERSONAL DATA

Born 25 July 1954
Married to Priv.-Doz. Dr. Kristina Müller, paediatric neurologist

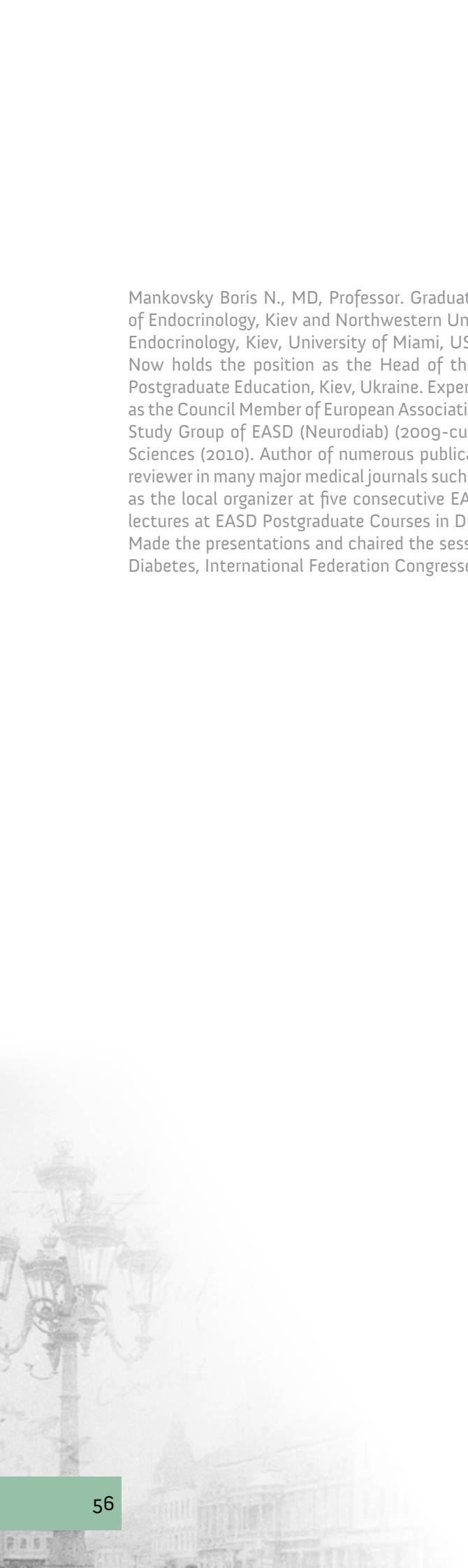
MEDICAL CAREER

1973 - 1980	School, Universities of Düsseldorf and Freiburg; Elective in Neurology at Boston City Hospital, Boston, Mass.; National Hospital for Nervous Diseases, London
since 1975	Junior researcher in the Department of Neuropsychology at the C. & O. Vogt Institute for Brain Research, Düsseldorf and the Department of Neurology, Freiburg (Prof. R. Jung)
1980 - 1981	Research fellow in the Department of Neuropsychology (Prof. G. Grünewald) at the C. & O. Vogt Institute for Brain Research, Düsseldorf
since 1981	Clinical training in the Department of Neurology (Prof. H.-J. Freund), Heinrich- Heine-University Düsseldorf
since 1985	Senior registrar in the Department of Neurology, Heinrich-Heine-University Düsseldorf
since 1987	Senior investigator for the German Research Council Special Task Force in Neurology at Heinrich-Heine-University (SFB 200 and SFB 194)
1987-2005	Medical director of the Neurological Therapy Center (NTC), Heinrich-Heine-University Düsseldorf
since 1988	Board examiner for Neurology at the local examination board (Ärztekammer Nordrhein)
1989-1997	Vice president of the German Society for Neurological Rehabilitation
1993	Habilitation in Neurology, Heinrich-Heine-University Düsseldorf
since 1995	Board examiner for physical medicine and rehabilitation (Ärztekammer Nordrhein)
1997-2005	Medical director of the Neurological Therapy Center, Cologne
1998-2004	President of the German Society for Neurological Rehabilitation
since 2000	Medical director and head of neurology, St. Mauritius Therapy Hospital, Meerbusch
since 2003	Secretary General World Federation for NeuroRehabilitation (WFNR)
since 10/2004	Vice president of the German Society for Neurological Rehabilitation
since 2005	Panel-Chairman Neurorehabilitation for European Federation Neurological Societies (EFNS)

BORIS MANKOVSKI

/Ukraine

Mankovsky Boris N., MD, Professor. Graduated from Kiev Medical University. Completed training at Institute of Endocrinology, Kiev and Northwestern University, Chicago. Continued his professional carrier at Institute of Endocrinology, Kiev, University of Miami, USA and German National Diabetes Institute, Dusseldorf, Germany. Now holds the position as the Head of the Diabetology Department at the National Medical Academy of Postgraduate Education, Kiev, Ukraine. Expert in the field of cerebral complications of diabetes mellitus. Elected as the Council Member of European Association for the Study of Diabetes (2005-2008) and Diabetic Neuropathy Study Group of EASD (Neurodiab) (2009-currently), corresponding member of Ukrainian Academy of Medical Sciences (2010). Author of numerous publications in the peer-reviewed journals and book chapters. Serves as reviewer in many major medical journals such Diabetes Care, Diabetes, British Medical Journal and others. Served as the local organizer at five consecutive EASD Postgraduate Courses in Ukraine (2009-2013). Presented the lectures at EASD Postgraduate Courses in Dubai, Sri Lanka, Poland, Slovenia, Azerbaijan, Kazachstan, Ukraine. Made the presentations and chaired the sessions at Annual Meetings of European Association for the Study of Diabetes, International Federation Congresses, Danube Countries Diabetes Meetings.



DAFIN F. MUREŞANU

/Romania

Muresanu Fior Dafin, MD, PhD, MBA, FANA, is the President of the Romanian Society of Neurology, Professor of Neurology, Chairman Department of Neurosciences, "Iuliu Hatieganu" University of Medicine and Pharmacy Cluj-Napoca, member of the Academy of Medical Sciences, Romania, and secretary of Cluj-Napoca regional branch. He also acts as the President of the Society for the Study of Neuroprotection and Neuroplasticity. In these roles, he is involved as member of the faculty in international educational programs of European Master (i.e. European Master in Stroke Medicine, University of Krems), organizer and co-organizer of European and international schools and courses (International School of Neurology, European Stroke Organisation Summer School, Danubian Neurological Society Teaching Courses). His activity includes involvement in many clinical studies and research projects, memberships in the executive board of many national and international societies, participations as invited speaker in national and international congresses, a significant portfolio of scientific articles (over 100 papers indexed on Web of Knowledge-ISI) as well as contributions in monographs and books published by prestigious international publishing houses. In the last 7 years, he was also invited as speaker in over 200 scientific events both national and abroad. Prof. Dr. Muresanu has been honoured with the Faculty of Medicine, University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca "Octavian Fodor Award" for the best scientific activity of the year 2010 and the 2009 Romanian Academy "Gheorghe Marinescu Award" for advanced contributions in Neuroprotection and Neuroplasticity.

ADRIANA SARAH NICA
/Romania

Current position
- Professor in Physical Medicine, Rehabilitation and Balneoclimatology at the University of Medicine "Carol Davila", Bucharest
- Head of Rehabilitation Department - University of Medicine "Carol Davila", Bucharest
- PhD
- Chief of University Rehabilitation Department III – National Institute of Rehabilitation, Physical Medicine and Balneoclimatology
- European Board certified in PRM
- Senior consultant in Physical Medicine and Rehabilitation

Medical Career
1978 – MD at the Faculty of Medicine – University of Medicine "Carol Davila", Bucharest
1982 – University assistant and resident doctor – Balneoclimatology, Sport Medicine and Physical Medicine – University of Medicine "Carol Davila", Bucharest
1985 – Specialist in Balneoclimatology, Sport Medicine and Physical Medicine – University of Medicine "Carol Davila", Bucharest, confirmed by the Ministery of Health of Romania
1992 – Lecturer – Balneoclimatology, Sport Medicine and Physical Medicine – University of Medicine "Carol Davila", Bucharest
1997 – PhD at the University of Medicine "Carol Davila", Bucharest
1998 – Ass. Professor of Balneoclimatology, Sport Medicine and Physical Medicine – University of Medicine "Carol Davila", Bucharest
2002 – 2004 – Medical Director of National Institute of Rehabilitation, Physical Medicine, Balneoclimatology, Bucharest, Romania
2003 – Professor of Rehabilitation, Physical Medicine and Balneoclimatology

Scientific activity

Author of 4 books
Chapters in published books - 9 chapters
Author or coauthor of more than 200 papers published in national and international issues
Research: project manager in 6 national projects, partner in 1 international project
Keynote speaker in international congresses and conferences: Verona (1995), Florence (2008), Bucharest (2007, 2008)
Delegate of ISPRM WRD Commitee for ICF, 2011

Affiliation

- Romanian Association of Physical Medicine and Rehabilitation ISPRM (International Society of Physical & Rehabilitation Medicine (Board member since 2010)
- Romanian Association for the Study of Pain (Past President)
- Romanian Rheumatological Association
- Romanian Association for Osteoporosis
- Romanian Association for Laser
- Romanian Association for Psycho-neuro-endocrinology
- Romanian Association for Geriatry
- I.A.S.P.
- Fellow of Seminar Salzburg Society
- EFIC (Councellar of the Board of European Federation International Corner Committee for Romania – 2006 - 2012)
- Romanian Termography Medical Association (President)
- Member of the PRM Commision in the Ministry of Health

CRISTINA PANEA
/Romania

Cristina Aura Panea has graduated the University of Medicine and Pharmacy "Carol Davila" Bucharest in 1986. She has started the neurology specialty and her university teaching career in the Neurology Department of the University Emergency Hospital of Bucharest in 1991 and has obtained her PhD in Medical Sciences in 2000. Starting with 2003, she is Associated Professor and the Head of the Neurology Department of Elias Emergency University Hospital.

The main fields in which she has activated are epilepsy, multiple sclerosis and movement disorders – fields in which she had elaborated over 100 papers and has carried out numerous clinical researches.

She is a member of the Romanian Neurology – which treasurer she was between the years 2001 to 2009; also she is a member of the European Neurology Society, American Academy of Neurology and of the International Movement Disorders Society.

LĂCRĂMIOARA PERJU-DUMBRAVĂ

/Romania

Lăcrămioara Perju-Dumbravă, MD, PhD is Professor of Neurology within the Neurosciences Department, Faculty of Medicine, University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca, Chairman of the First Neurology University Clinic, Cluj-Napoca, Romania. Her academic status includes her position as member of the Board of the Faculty of Medicine and of the University's Senate, as well as Doctorate coordinator in the field of MEDICINE. Her prestigious activity includes: publishing of 3 monographs, co-authorship in other 7 speciality books, 168 scientific papers published in medical journals, chairman and speaker at annual national congresses and conferences, international conferences and membership in editing committees and professional societies, involvement in several clinical studies, her expertise being sought by national medical councils and committees.

CRISTIAN DINU POPESCU

/Romania

Cristian Dinu POPESCU is a professor of Neurology at the University of Medicine and Pharmacy "Gr. T. Popa" Iasi. He graduated from the same University in 1975 and holds a PhD from 1991.

He is the head of the Neurology Clinic in The Clinical Rehabilitation Hospital in Iasi, Romania, where he conducts his clinical and scientific activity.

Since 2008 he is chief of the Neurology Department and also the chief of the VI th Medical Chair of the Iasi Medical University.

He is a member of national and international professional associations (vice president of the Romanian Society of Neurology, member of the Society for Study of Neuroprotection and Neuroplasticity, Society of Parkinson's Disease and Movement Disorders, European Council of Neurological Rehabilitation, Balcanian Medical Union). He was an invited speaker in most of the important national neurology scientific events during the last years. He is a local coordinator for MS immunomodulatory treatment. He initiated and coordinated the organization of the National Multiple Sclerosis Conferences during the last 5 years.

He has authored or coordinated 5 books and took part in writing of 12 other books as coautohor, and more than 150 papers.

His main fields of interest have been aging of the brain and its vascular system, multiple sclerosis, rehabilitation in stroke and other neurological diseases. Neurorehabilitation and neuroplasticity are among the main topics of concern, both in current clinical practice and regarding the research activities.

His group was among the first to use functional electrical stimulation in Romania - current research targets applications and effects of FES in stroke, MS and Parkinson's disease.

He is the coordinator of one of the first groups in our contry to use transcranian magnetic stimulation in neurology – both in clinical practice (diagnostic and therapeuthical TMS) and for research (cortical neuroplasticity and neuromodulation)

MIHAELA SIMU
/Romania

Mihaela Simu is presently working as Professor and Chairman of the Neurology Department II of University of Medicine and Pharmacy “Victor Babes” - Timisoara.
Professor Simu is currently Vicepresident of the Romanian Society of Neurology, one of the coordinators of the National Programme for the treatment of Multiple Sclerosis in Romania, active member of ENS, EFNS, American Academy of Neurology, and MDS.
Professor Simu has been and is involved as principal investigator in more than 20 international and national multicentric trials and 4 national research grants, and is presently the Romanian project leader in the BIOMARK HURO project (cooperation between Szeged and Timisoara medical Universities). Her interests are directed mainly in clinical neurology, in particular in multiple sclerosis, Parkinson disease, dementia, cerebrovascular and focal dystonias.
As author or co-author, has published and reported more than 100 national and international scientific papers, 3 medical books and 2 neurology courses in a bilingual (Romanian /English) version.

STEPHEN SKAPER
/Italy

STUDIES: B.S. (chemistry) Illinois Institute of Technology (1969); Ph.D. (biochemistry) University of South Dakota (1973); Laurea in chemistry, University of Padova (1990)

CAREER: NIH Postdoctoral Fellow, Department of Medicine, University of California, San Diego (1973-1976); Fellow in Human Genetics, Department of Pediatrics, Case Western Reserve University, Cleveland, Ohio (1977); Postgraduate Research Biologist, Department of Biology, University of California, San Diego (1978); Assistant Research Biologist, Department of Biology, University of California, San Diego (1979-1982); Associate Research Biologist, Department of Biology, University of California, San Diego (1983-1987); Head, Laboratory of Neuropharmacology, Neuroscience Research Laboratories, Fidia S.p.A. - Abano Terme, Italy (1987-1993); Principal Scientist and Head, Laboratory of Cell Biology, Researchlife S.c.p.A. (a Lifegroup Company), Biomedical Research Center, St. Thomas Hospital, Castelfranco Veneto (TV), Italy (1993-1996); Visiting Professor, Department of Pharmacology, University of Padova, Padova, Italy (1997); Assistant Director, Molecular Neurobiology Research, SmithKline Beecham Pharmaceuticals, New Frontiers Science Park, Harlow, United Kingdom (1998-2001); Senior Team Leader, Migraine and Stroke Research, Neurology & GI Centre of Excellence for Drug Discovery, GlaxoSmithKline R & D Limited, Harlow, United Kingdom (2002-2003); Senior Team Leader, Neuro Cell Sciences/Neurodegeneration Research, Neurology & GI Centre of Excellence for Drug Discovery, GlaxoSmithKline R & D Limited, Harlow, United Kingdom (2004-2007); Senior Team Leader, Target Validation Dept (Cognition and Pain), Centre of Excellence for Drug Discovery, GlaxoSmithKline R&D Limited, Harlow, United Kingdom (2008); Adjunct Professor, Department of Pharmacology and Anesthesiology, University of Padova, Faculty of Medicine, Padova, Italy (2009-present).

PROFESSIONAL MEMBERSHIPS: Sigma CI (The Scientific Research Society); Phi Lambda Upsilon (honorary chemistry society); Alpha Chi Sigma (professional society in chemistry/chemical engineering); Society for Neuroscience; International Society for Cerebral Blood Flow and Metabolism

JOURNALS EDITED: Editor-in-Chief, CNS & Neurological Disorders – Drug Targets; Editor-in-Chief, Clinical CNS Drugs; Associate Editor, American Journal of Neuroprotection and Neuroregeneration; Editorial Board Member, Nature Scientific Reports (Neuroscience); Councilor, International Association of Neurorestoratology
REVIEW PANELS: The Wellcome Trust (UK), Biotechnology and Biological Sciences Research Council (BBSRC) (UK), Austrian Science Fund (ad hoc review panel to evaluate interdisciplinary doctoral programmes in neuroscience)

RESEARCH INTERESTS: Molecular biology and cellular mechanisms of cell death in CNS aging and neurodegenerative disorders and neuroinflammation.Track record of drug discovery project leadership in kinases, ion channels, G-protein-coupled receptors, DNA repair enzymes, growth factors, identification and optimization of tools for target validation studies, utilising RNAi, conditional and viral knockdown\outs\ins, transcriptomics, proteomics and in vitro cell-based disease or mechanism relevant assays in rodent systems.

PUBLICATIONS: OVER 240 publications in the neurosciences, including book chapters and symposia proceedings.

PATENTS: Pharmaceutical compositions containing monosialoganglioside GM1 or derivative thereof suitable for the treatment of Parkinson's disease (Patent No.: US 6,620,792 B1), use of CRF receptor agonists for the treatment or prophylaxis of diseases, for example neurodegenerative diseases (US 2003/0186867 A1), treatment of conditions with a need of GSK-3 inhibition (PCT WO 02/062387 A1), use of CRF receptor agonists for the treatment or prophylaxis of diseases, for example neurodegenerative diseases (PCT WO 01/72326 A1), use of monosialoganglioside GM1 or N-dichloro-acetyl-lyso-GM1 for preventing or reversing neuronal degeneration induced by long term treatment with L-DOPA in the therapy of Parkinson's disease (EP 0 770 389 A1)

REVIEWER FOR JOURNALS: Journal of Neuroscience, PNAS, Nature Reviews, The FASEB Journal, Journal of Neurochemistry, Journal of Neuroinflammation, Neurobiology of Disease, Neurobiology of Aging, Glia, Apoptosis, Molecular & Cellular Neuroscience, Journal of Pharmacology and Experimental Therapeutics, Neuroscience, British Journal of Pharmacology, Neuropharmacology, European Journal of Pharmacology, Journal of Neurological Sciences

FRANCESC VALLDEORIOLA
/Spain

Present position

Consultant in Neurology
Parkinson's Disease and Movement Disorders Unit
Service of Neurology
Institut Clínic de Neurociències
Hospital Clínic i Provincial, Barcelona.
C/ Villarroel, 170, 08036-Barcelona, Spain

Previous professional experience

1) Resident in the Neurology Service from the Hospital Clínic of Barcelona.
2) Fellowship in the Neurology Service from the Hospital Clínic of Barcelona in the study of "Detection of antineu◂ro◂nal antibodies by immunoblotting in patients with paraneo◂plasti◂cal neurologic diseases".
3) PhD fellow in the Service of Neurology of the Hospital Clínic of Barcelona.

Educational Background

M.D. by the University of Barcelona, July, 1988.
Mark: Excellent

DOCTORATE degree by the University of Barcelona, December, 2001, Mark: Excellent "Cum Laude" with the unanimity of the Jury and Doctorate extraordinary award, given by the University of Barcelona in July 2003.

Specialization

-Neurology: Titled by the Spanish Education and Science Ministry, 1993.

Training in other sites

-Centre Hospitalier Universitaire, Grenoble (France). 5/95. Head: Dr. Pierre Pollak.
-Emory University, Atlanta, GA (USA). 11-12/1995. Head: Dr. Malon. DeLong
-Northwestern Hospital, Toronto, Ontario (Canada). 5/97 Head: Dr. A. Lozano

Memberships

- Catalan Neurological Society
- Spanish Neurological Society
- European Neurological Society
- Movement Disorder Society
- Institut d'Investigacions Biomèdiques "August Pi i Sunyer"
- Brainstem Reflexes Society

Publications

More than 180 publications in indexed journals and books.
More than 200 presentations to Meetings and Congressess.
25 book chapters
More than 200 invited conferences
Organization of International Courses on Deep Brain Stimulation
Participation in expert committees in several fields of movement disorders
Participation in more than 40 clinical trials as associated or principal investigator
Recipient of prizes from the Spanish Neurological Society and the European Neurological Society

JOHANNES VESTER
/Germany

Born, 1952, he specialized in Veterinary Medicine between 1971 and 1974 at the University in Munich, then changed to the University in Cologne in 1974 and specialized in Human Medicine from 1974 to 1980. In 1976 to 1979, he additionally studied biometric methods for pharmacology and clinical research at the Institute for Data Analysis and Study Planning in Munich.

While studying human medicine, he completed research work on pattern recognition in the visual brain and developed a pharmacodynamic Neuron Simulation Model at the Institute for Medical Documentation and Statistics of the University at Cologne.

From 1985 to 1995, he was member of the Ultrahigh Dexamethasone Head Injury Study Group and leading biometrician of the German GUDHIS Study.

Since 1982 he holds advanced training courses on biometry for professionals in clinical research and university establishments. His work also involves human engineering of biometric software and GCP-compliant tutorials for biometric appraisal of clinical studies.

Since 1995 he cooperates closely with the Institute for Data Analysis and Study Planning as Senior Consultant for Biometry & Clinical Research. He planned and evaluated about 150 randomized clinical studies worldwide and is member of various international advisory boards including participation as biometric expert in regulatory authority panels and in FDA, EMEA, and BfArM hearings.

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