Academy for Multidisciplinary Neurotraumatology

FOUNDATION OF THE SOCIETY FOR THE STUDY OF NEUROPROTECTION AND NEUROPLASTICITY

UMF IULIU HATIEGANU UNIVERSITY OF MEDICINE AND PHARMACY CLUJ-NAPOCA

RoNEURO Institute for Neurological Research and Diagnostic

FUNDATIA JURNALULUI Journal of Medicine and Life

16TH AMN CONGRESS

OCTOBER 5TH, 2018
ELBA ESTEPONA GRAN HOTEL
COSTA DEL SOL | SPAIN

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37 Calea Motilor, Ap 6
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Scientific Secretariat

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

Contact Details

Mrs. Doria Constantinescu,
mobile: +40757096111
doria@synapsetravel.ro

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The official language is English. Simultaneous translation will not be provided.

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

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Coffee, tea and water are served during morning coffee breaks and are free of charge to all registered participants.

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SCIENTIFIC PROGRAM

16TH AMN CONGRESS

OCTOBER 5TH, 2018 | ELBA ESTEPONA GRAN HOTEL
COSTA DEL SOL | SPAIN

FRIDAY, OCTOBER 5TH, 2018

08:45 – 09:00	*WELCOME ADDRESS*
SESSION 1, CHAIRPERSONS:	Klaus von Wild (Germany), Volker Hömberg (Germany)
09:00 – 09:20	Dafin F. Mureșanu (Romania) Cognitive impairment in TBI – a particular view through connectomics
09:20 – 09:40	Nicole von Steinbüchel (Germany) Development of a TBI specific health related quality of life assessment in children, adolescents and their proxies
09:40 – 10:00	Johannes Vester (Germany) The multidimensional approach - towards a new gold standard in TBI clinical research
10:00 – 10:20	Volker Hömberg (Germany) Do we need a new concept of neuropsychology?
10:20 – 10:25	Discussions
10:25 – 10:45	*COFFEE BREAK*

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SESSION 2, CHAIRPERSONS: Michael Chopp (USA), Max Hilz (Germany)

10:45 – 11:05	Michael Chopp (USA) The therapeutic effects of neurotrophic factors on the neurovascular unit and preclinical studies in stroke and TBI
11:05 – 11:25	Max Hilz (Germany) Patients with a history of traumatic brain injury have subtle cardiovascular autonomic dysfunction which correlates with cognitive impairment
11:25 – 11:45	David Wright (USA) Concussion – revelations of a complex condition with potential long-term consequences
11:45 – 12:05	Hari Shanker Sharma (Sweden) Repeated TiO2-nanowired delivery of neurotrophic factors reduces pathophysiology of blast brain injury
12:05 – 12:10	Discussion
12:10 – 13:10	*LUNCH*

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SESSION 3, CHAIRPERSONS: David Wright (USA), Heinrich Binder (Austria)

13:10 – 13:30	Karin Diserens (Switzerland) Clinical and neurophysiological evaluation of patients of disorders of consciousness and cognitive motor dissociation by a motor behavior tool and multisensory integration in the peri-personal space
13:30 – 13:50	Dorel Săndesc (Romania) Metabolism monitoring and nutrition management in polytrauma patients with severe traumatic brain injury (TBI)
13:50 – 14:10	Heinrich Binder (Austria) The mystery of delirant states: concept, diagnosis and treatment
14:10 – 14:30	Russell Andrews (USA) Neurotraumatology, neurosurgery, and global healthcare. The stars are aligning for AMN!
14:30 – 14:35	Discussions
14:35 – 15:00	*COFFEE BREAK*

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SESSION 4, CHAIRPERSONS: Hari Shanker Sharma (Sweden), Russell Andrews (USA)

15:00 – 15:20	Antón Álvarez (Spain) Involvement of BDNF in neurocognitive recovery after TBI
15:20– 15:40	Dana Boering (Germany) Critical illness neuromyopathies after TBI: how to diagnose and how to treat
15:40 – 16:00	A. V. Ciurea (Romania) New perspectives and modern neuroimaging achievements in chronic phase of traumatic brain injury
16:00 – 16:10	*CLOSING REMARKS*

ABSTRACTS

INVOLVEMENT OF BDNF IN NEUROCOGNITIVE RECOVERY AFTER TBI

ANTÓN ÁLVAREZ[1,2]

JESUS FIGUEROA[1,3], *DAFIN F. MUREŞANU*[4,5]

1. Medinova Institute of Neurosciences, Clínica RehaSalud, A Coruña, Spain;
2. Clinical Research Department, QPS Holdings, A Coruña, Spain;
3. Rehabilitation Department, University Hospital, Santiago de Compostela, Spain;
4. Department of Neurosciences, University of Medicine & Pharmacy 'Iuliu Hatieganu', Cluj-Napoca, Romania
5. "RoNeuro" Institute for Neurological Research and Diagnostic, Cluj-Napoca, Romania

Neurocognitive deficits represent a main cause of disability after traumatic brain injury (TBI). Up to 10-15% of the individuals with mild TBI (mTBI) show persistent difficulties in cognition and executive functions; more than half of the patients with moderate-severe TBI (msTBI) endure long-term cognitive impairment; and the risk of dementia attributable to TBI is in the range of 5% to 15%. However, neurocognitive deficits and dementia after TBI have been poorly investigated, and there is no effective drug therapy for its management.

TBI activates endogenous processes of neurorestoration by inducing the expression of neuroprotective genes, which are also responsive to the administration of neurotrophic factors such as Brain-derived neurotrophic factor (BDNF). Thus, the modulation of the endogenous repair mechanisms mediated by neurotrophic factors represents an appealing drug target for neurocognitive recovery after TBI. BDNF is the most abundant neurotrophin within the brain and showed a positive influence on cognitive functioning post-TBI in both experimental models and clinical samples. Reduced brain expression of BDNF after TBI is associated with memory impairment in rodents, and low circulating BDNF levels were found to be associated with poorer memory performance in TBI patients. BDNF also appears to mediate the beneficial effects on cognition of experimental treatments with simvastatin, transcranial low-level laser light therapy and exercise. On the other hand, BDNF gene polymorphisms were shown to influence preservation of general cognitive functioning; delayed alteration of memory processing; memory and processing speed; attention, language and visuospatial performance; and the recovery of memory and executive functioning after TBI.

The therapeutic potential of BDNF in TBI is restricted due to its short half-life and inability to cross the brain-blood-barrier. Therefore, the development of small BDNF mimetic molecules such as flavonoid 7,8-dihydroxyflavone (7,8-DHF) able of activating TrkB receptors; and the treatment with drugs enhancing endogenous BDNF like Cerebrolysin could represent effective therapeutic options for improving neurocognitive deficits, and probably for preventing dementia after TBI.

NEUROTRAUMATOLOGY, NEUROSURGERY, AND GLOBAL HEALTHCARE: THE STARS ARE ALIGNING FOR AMN!

RUSSELL ANDREWS[1,2]

1. World Federation of Neurosurgical Societies, Nyon, Switzerland
2. Nanotechnology & Smart Systems, NASA Ames Research Center, Moffett Field, CA, USA

Although research on neurotrauma and neuroregeneration following nervous system trauma was well established when the first AMN congress met a couple of decades ago, the recognition of neurotrauma's role in global health was meager at best. The focus of international organizations involved in healthcare such as the United Nations and the World Health Organization – as well as NGOs such as the Gates Foundation – was on interventions such as improved sanitation, clean water, immunizations, and antibiotics. Perhaps with considerable merit at that time, mosquito nets were valued above ambulances, emergency rooms, and intensive care units.

What a difference a couple of decades can make!

In 2015, the Lancet Commission on Global Surgery 2030 published extensive data on the role of surgery for global healthcare, global economics, and quality of life worldwide. Roughly one-third of all deaths worldwide are the result of lack of surgical resources – primarily but not entirely in LMICs (low and middle income countries). This number exceeds the number of deaths due to HIV/AIDS, malaria, or tuberculosis by a factor of ten, and by the sum of the deaths from HIV/AIDS + malaria + tuberculosis by nearly a factor of 5 (roughly 18 million versus 3.8 million total). Although natural disasters – primarily storms and earthquakes – are a major source of trauma mortality in LICs in particular, road traffic trauma mortality (as a percentage of all trauma mortality) is actually higher in the more developed, high-income countries. Reducing trauma mortality in LMICs could save more than 2 million lives each year, with significant economic benefit to the global economy. The Lancet Commission and other recent studies have documented that improving global surgery – particularly trauma care – would be a major factor in reducing global poverty as well as improving healthcare.

This recognition of the importance of improving trauma care has not been lost on the global neurosurgery community. The current President of the World Federation of Neurosurgical Societies (WFNS), Franco Servadei from Italy, specializes in neurotrauma. Whereas the subspecialty committees of the WFNS have included the Neurotrauma Committee for many years, two new subspecialty committees have been recently formed: the Mass Casualty Committee and the Neurorehabilitation/

Neuroregereation Committee:	
Neurotrauma Committee	Chair: Tariq Khan (Pakistan)
Mass Casualty Committee	Chair: Michiyasu Suzuki (Japan)
Neurorehabilitation/ Neuroregeneration Committee	Chair: Maximilian Mehdorn (Germany)

Not only have organizations traditionally involved in global healthcare recognized the overwhelming importance of improving surgical care – and particularly trauma care – for progress in global health and reduction in global poverty, the World Bank President (Jim Yong Kim) has stated: "Surgery is an indivisible, indispensable part of health care."

The 1990s may have been the Decade of the Brain – but the 2020s promise to be the Decade of Neurotrauma!

THE MYSTERY OF DELIRANT STATES: CONCEPT, DIAGNOSIS, TREATMENT

HEINRICH BINDER
Landsteiner Institute for Neurorehabilitation and Space Medicine, Vienna, Austria

Patients with the symptoms of delirium were described more than 2,000 years ago. Similar reports always connected with more or less severe physical illness have been repeated since that time. The name for the clinical picture varied. Among others the name delirium appeared. However for many years a clear distinction against other terms was barely recognizable.

Only since beginning of the nineteenth century, the just developing clinical psychiatry strove for an improved syndromatic clarification of mental illness. For certain of these a causal connection with somatic diseases also concerning the brain itself was empirically postulated. Thereafter it came to definition of organic psychoses, acute organic brain syndrome and brief reactive psychosis as a kind of collective term for various subtypes including delirium, confusion, amentia, semi-consciousness, hallucinosis.

Unfortunately their constitutive characteristics were often ambiguous which is why experienced psychiatrists were needed for diagnosis. But experienced psychiatrist are not always available. Moreover they don't always agree. For this reason, an attempt was made to develop a new diagnostic catalog with clear diagnostic criteria based on the old disease entities. Regarding delirium the result

can be found in DSM-5 and ICD-10. Essentially it is about acute onset, fluctuating course, disturbance of consciousness and attention, disturbance of cognition and perception, disturbance of psychomotricity, disturbance of sleep-wake cycle and disturbance of affectivity. Recognizing a full delirium should not be difficult. But each of these features may vary in quantitative manifestation. Among other things this has led to a differentiation into subsyndromal, hyperactive, hypoactive and mixed delirium. Differential diagnostic considerations are necessary additionally because of an overlap of its characteristics with other diseases. Examples include dementia, hallucinations, schizophrenia and non-convulsive status epilepticus. Therefore even superficially it is clear that a reliable assessment of at least some points without experience is not possible.

Appearance of a delirium is always a red flag. Quick and correct diagnosis is inevitable. The fact is, that most patients with delirium stay in internal departments, ICUs or geriatric departments. In most cases, the time and psychiatric expertise is lacking for extensive psychopathological exploration. To circumvent this problem, meanwhile a number of delirium screening tools have been developed which does not require for now a psychiatrist. Afterwards rapid action is necessary with regard to the triggering cause on the one hand. On the other hand termination of the mental disturbance as quickly as possible is badly needed first and foremost because of the subjective debilitating experience for the patient.

During a delirium changes at different levels with also long-term consequences occur in the brain. Concerning this up to now there are only hypotheses for instance regarding acetylcholine deficiency, hyperactivity of hypothalamic-pituitary-suprarenal gland axis and increased levels of pro-inflammatory cytokines. As well one of the challenging problems ascertains why not every patient with a particular disease develops delirium and why different diseases result in similar delirium. There are obviously different vulnerability factors and trigger factors but also a final common pathway. Nevertheless, the cause remains unclear in up to 50% of cases. For this reason treatment figures a particular challenge. Apart from eliminating any possible causes, there is currently only symptomatic drug therapy with antipsychotics available. But it also shows that a delirium can be positively influenced by creating a calming environment involving staffing and family.

CRITICAL ILLNESS NEUROMYOPATHIES AFTER TBI: HOW TO DIAGNOSE AND HOW TO TREAT

DANA BOERING
Department of Neurology, SRH GBW Bad Wimpfen, Germany

Severe TBI, the number one cause of mortality and disability in young adults in modern western societies, is a major and challenging problem in critical care medicine. Over the last years there is a remarcable progress in the critical care management of severe TBI, based on broadly implemented guideline based protocols. During ICU stay, both general and specific neuromonitoring are essential due tot he complex medical situation.

A substantial number of patients admitted to the ICU after sever TBI develop a de novo form of muscle weakness during ICU stay that is referred to as ICUAW, due to axonal neuropathy, primary myopathy or both., its development being independently correlated to the1 year mortality and physical functioning after ICU There is a growing body of literature offering us a more and more detailed knowledge of the main risk factors for developing ICUAW, of the multifaceted pathophysiological processes involved in it´s development and working out the cornerstones of early prevention and management. A thorough literature research couldn´t draw up any publication concerning specific aspects of ICUAW in severe TBI patients.

The talk will give an overview of the actual ICUAW literature trying to embed the actual approach in a more comprehensive management chain comprising pre ICU aspects, ICU stay as well as the multifaceted post intensive care syndrome working out some aspects specific for TBI.

THE THERAPEUTIC EFFECTS OF NEUROTROPHIC FACTORS ON THE NEUROVASCULAR UNIT AND IN PRECLINICAL STUDIES IN STROKE AND TBI

MICHAEL CHOPP

ZHENG GANG ZHANG, LI ZHANG, HUA TENG, LI, CHAO, YE XIONG, EMILY ZHANG

Henry Ford Hospital, Department of Neurology, Detroit, MI, USA

Oakland University, Department of Physics, Rochester, MI, USA

The neurovascular unit, consisting of interactive endothelial cells, pericytes, astrocytes and neurons is compromised and damaged after stroke, neural injury and neurodegenerative diseases. Recovery of neurological function very much depends on the functional recovery and integrity of the neurovascular unit. Here, I present the operational roles of Cerebrolysin in repairing and remodeling the neurovascular unit in response to stroke and neural injury. Using both in vivo double blinded preclinical trials for ischemic stroke and traumatic brain injury, and clinically relevant in vitro models, we demonstrate that Cerebrolysin enhances neurological recovery by promoting vascular/endothelial homeostasis and blood brain barrier integrity and function. Cerebrolysin acts to a large extent on maintaining vascular function and by reducing procoagulant and prothrombotic states within the cerebral circulation after stroke and neural injury. The microvasculature after treatment with Cerebrolysin actively communicates and interacts with parenchymal cells, via the generation of families of therapeutic microRNAs which promote neurite outgrowth, remyelination, and reduce inflammatory responses. Thus, our data indicate that Cerebrolysin by acting on the neurovascular unit has a wide range of therapeutic applications for the treatment of stroke, neural injury and neurodegenerative diseases.

NEW PERSPECTIVES AND MODERN NEUROIMAGING ACHIEVEMENTS IN CHRONIC PHASE OF TRAUMATIC BRAIN INJURY

A.V. CIUREA[1,2]
V. IONESCU[3], *HORIA PLES*[4], *AUREL GEORGE MOHAN*[5], *VICENTIU SACELEANU*[6]
RADU ONCIUL[1], *ANDREI ALEXANDRU MARINESCU*[1]

1. Carol Davila University School of Medicine, Department of Neurosurgery, Bucharest, Romania.
2. Sanador Medical Center Hospital, Department of Neurosurgery, Bucharest, Romania.
4. Timis County Emergency Hospital, Department of Neurosurgery, Timisoara, Romania.
5. Bihor County Emergency Hospital, Department of Neurosurgery, Oradea, Romania.
6. Sibiu County Emergency Hospital, Department of Neurosurgery, Sibiu, Romania.

INTRODUCTION

Traumatic Brain Injury (TBI) represents a healthcare system problem. In 2014 in USA the cost of treating TBI alone was $4 billion. Also, the annual incidence proportion for all ages in the USA was 295 per 100.000. Most TBIs are mild and occur in males. The age groups affected are 0-4 yrs. old, 15-19 yrs. old and adult over 65 yrs. old.

Annually in the US there are 1.7 million patients with TBI, of which 52.000 die and 275.000 are hospitalized, the other remain under observation.

MATERIALS AND METHODS

The cohort was comprised of 92 cases, all in a chronic post traumatic phase – between 2 months and 2 years. We selected the TBI cases that had no politraumatic etiology or associated spinal cord injuries.

The cases were gathered from 4 neurosurgical centers: Sanador Clinical Hospital Bucharest, Timisoara County Emergency Clinical Hospital, Bihor County Emergency Clinical Hospital and Sibiu County Emergency Clinical Hospital during a period of 3 years (1 Jan 2014 - 1 Jan 2017). The cases were selected based only on clinical data: predominantly unique TBI, 11-65 years old, hospitalization during the acute phase. The follow-up was done using CT-scans and MRIs.

Regarding TBI classification based of traumatism severity, Glasgow Coma Scale was used at admittance and Glasgow Outcome Scale or Glasgow Outcome Scale Extended at discharge.

All cases at admittance were moderate TBIs 59 (64.1%) and 33 severe (35.8%). No case was mild or minor in our data. All severe cases received standard treatment of Cerebrolysin in ICU along with other vital and adjuvant treatments.

A high-tech 3 Tesla MRI scan is of utmost importance in order to have a complex evaluation of the chronic intracerebral lesions. The authors analyze the main methods of investigation in chronic TBIs which reveal the most data regarding posttraumatic sequelae; the correlation between clinical data, neuroimaging and forensic investigation being the main tool of diagnosis.

The main neurological modifications were registered on T2 and TSE sequences of MRI scans. The images showed multiple DAI-like (Diffuse Axonal Injury) lesions in corpus callosum, median line and brain stem.

TGSE sequencing underlines the presence of posttraumatic lesions originating from concussions in the hemispheres which explains the epileptic seizures in some cases. Fronto-basal or temporo-polar concussive lesions present in MRI scans are corelated with modifications of the conscience, memory, attention or cognitive activities.

The authors observed subarachnoid posttraumatic hemosiderin impregnations in the ventricular ependyma which explains the major epileptic seizures and cognitive modifications.

A number of patients over 60 years old developed posttraumatic ventriculomegaly, but none of the cases underwent ventriculoperitoneal drainage procedures.
Conclusions

TBI represent a health system problem and the outcome can be improved with prevention methods especially for car accidents.

In case of unique TBI with no other associated lesion the main course of action in the first 6 hours is obtaining enough clinical and neuroimaging data for a correct diagnosis. Depending on GCS monitoring, admission in the hospital or even the ICU can be recommended.

All cases of a GCS of 8 point or lower intracranial pressure must be monitored, and the patient must be admitted to ICU.

MRI scans in the acute phase are extremely difficult and not always relevant. In the chronic phase (over 6 months) MRI becomes essential, especially 3 Tesla MRI in order to observe the multiple focal concussive lesions and/or DAIs.

Clinical data in correlation with MRI represent an important source of data for forensic investigation.

KEY WORDS:
TBI, Glasgow Coma Scale, Glasgow Outcome Scale Extension, 3 Tesla MRI, Chronic intracerebral lesions,

CLINICAL AND NEUROPHYSIOLOGICAL EVALUATION OF PATIENTS OF DISORDERS OF CONSCIOUSNESS AND COGNITIVE MOTOR DISSOCIATION BY A MOTOR BEHAVIOR TOOL AND MULTISENSORY INTEGRATION IN THE PERI-PERSONAL SPACE

KARIN DISERENS[6,#]
JEAN-PAUL NOEL[1, *], *CAMILLE CHATELLE*[2, 3, 4, , *], *SERAFEIM PERDIKIS*[5], *JANE JÖHR*[6], *MARINA LOPES DA SILVA*[6], *PHILIPPE RYVLIN*[6], *RENAUD DU PASQUIER*[6], *MARZIA DE LUCIA*[7], *JOSE DEL R. MILAN*[5, #], *ANDREA SERINO*[8, #]
1. Vanderbilt Brain Institute, Vanderbilt University, Nashville, TN, USA
2. Center for Neurotechnology and Neurorecovery, Massachusetts General Hospital, Boston, MA, USA
3. Department of Neurology, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA
4. Coma Science Group, GIGA Consciousness, University and University Hospital of Liège, Liège, Belgium
5. Defitech Chair in Brain-Machine Interface (CNBI), Center for Neuroprosthetics, School of Engineering, Ecole Polytechnique Federale de Lausanne (EPFL), Geneva, Switzerland
6. Acute Neurorehabilitation Unit, Neurology, Department of and Clinical Neurosciences, University Hospital of Lausanne, Lausanne, Switzerland
7. Laboratoire de Recherche en Neuroimagerie, Department of Clinical Neurosciences, University Hospital of Lausanne, University of Lausanne, Lausanne, Switzerland
8. MySpace Lab, Department of Clinical Neurosciences, University Hospital of Lausanne, University of Lausanne, Lausanne, Switzerland

* These authors contributed equally and act as co-first authors
# These authors contributed equally and act both as co-senior authors and corresponding authors

Behavioral assessments of consciousness based on overt command following cannot differentiate between patients with impaired awareness from those who demonstrate a sharp dissociation between intent/awareness and motor capacity - a cognitive motor dissociation (CMD). Since the definition of CMD in 2015 by N Schiff (JAMA Neurol 2015) researchers have leveraged neuroimaging and neurophysiological techniques to measure consciousness. However these techniques were not always practicable or available and sometimes too expensive for routine diagnosis in the very acute phase. A clinical tool of observation of motor behavior (MBT) in complementary to the validated scores of diagnosis in disorders of consciousness (DOC) was developed by the team of the pilot unit of acute neurorehabilitation in Switzerland, University Hospital of Lausanne (Pignat JM , Diserens et al, Plos One 2016) permitting to identity the CMD patients from DOC patients. In order to confirm the clinical diagnosis, an electroencephalography (EEG)-based measure of peri-personal space (PPS) was applied. Delineating PPS in these patients is of interest as PPS is widely considered to be a multisensory-motor space allowing for human-environment interactions. Thus, evidence for PPS processing in DOC/CMD patients may indicate residual access to the motor system by part of these patients. Results demonstrated a significant correlation between the PPS measure and consciousness-level as indexed via quantitative, but not clinical measures. Furthermore, preserved multisensory processing within the PPS was found in CMD patients, differently from DOC patients. Taken together, these results suggest the utility of this novel assessment of DOC by measuring the integrity of multisensory-motor PPS processing. This approach may allow differentiating between groups of patients considered to be within the DOC spectrum, but who may nonetheless retain a minimal form of self-awareness, particularly patients with CMD. More importantly, the differentiation between DOC and CMD patients by indexing PPS, relies on neurophysiologically well-described neural circuits, putatively allowing in the future for a more mechanistic understanding of disorders of consciousness.

Keywords: Peri-Personal Space; Multisensory; Consciousness; Motor-Command Dissociation; Electroencephalography

PATIENTS WITH A HISTORY OF TRAUMATIC BRAIN INJURY HAVE SUBTLE CARDIOVASCULAR AUTONOMIC DYSFUNCTION WHICH CORRELATES WITH COGNITIVE IMPAIRMENT

MAX HILZ[1,2]

C. DE ROJAS LEAL[2], *S. ROY*[2], *M. LIU*[2], *K. M. HÖSL*[3], *D. MURESANU*[4], *R. WANG*[2]

1. Dept. of Neurology, University of Erlangen-Nuremberg, Erlangen, Germany
2. Dept. of Neurology, Icahn School of Medicine at Mount Sinai, New York, NY, USA
3. Dept. of Psychiatry and Psychotherapy, Paracelsus Medical University, Nuremberg, Germany
4. Dept. of Clinical Neurosciences, "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania; "RoNeuro" Institute for Neurological Research and Diagnostic, Cluj-Napoca, Romania.

Traumatic brain injury (TBI) may compromise brain regions that contribute to cardiovascular-autonomic modulation and to cognitive function. Consequently, patients with a history of TBI may manifest cognitive as well as cardiovascular-autonomic dysfunction. So far, associations between both impairments have not been assessed.

In this study, we evaluated possible correlations between cognitive and cardiovascular-autonomic dysfunction in patients with a history of TBI.

In 86 patients (22 women), aged 33.13±10.84 years, who had experienced mild to severe TBIs 36.8±28.9 months prior to our evaluation, we recorded RR-intervals (RRI), beat-to-beat systolic and diastolic blood pressures (BPsys, BPdia), and respiration (RESP) at rest. We calculated parameters of total cardiac-autonomic modulation [RRI-standard-deviation (RRI-SD), RRI-coefficient-of-variation (RRI-CV), RRI-total-powers], sympathetic [RRI-low-frequency-powers (RRI-LF), BPsys-LF-powers] and parasympathetic cardiac modulation [Root-Mean-Square-of-Successive-RRI-Differences (RMSSD), RRI-high-frequency-powers (RRI-HF)], sympathetic-parasympathetic balance (RRI-LF/HF-ratios), and baroreflex-sensitivity (BRS). We assessed executive function by means of the standardized Trail-Making-Tests (TMT) A and B. Part A evaluates visuospatial abilities; patients are asked to connect consecutive numbers from 1 to 25 that are scattered across a page. TMT-Part B tests executive function; patients are asked to connect alternating numbers and letters, i.e. 1–A–2–B, etc.. Higher TMT-values reflect poorer cognitive function. We used the Spearman-rank-tests to determine correlations between autonomic and cognitive parameters. Significance was assumed for p-values below 0.05.

Our results showed an inverse correlation between TMT-A values and parasympathetically mediated RRI-HF-powers (Spearman-Rho = -0.233, P = 0.033)

and BRS (Spearman-Rho = -0.221, P = 0.043), The TMT-B values positively correlated with the mainly sympathetically mediated RRI-LFnu-powers (Spearman-Rho = 0.265, P = 0.015), the RRI-LF/HF-ratios (Spearman-Rho = 0.230, P = 0.036), the sympathetically mediated BPsys-LF-powers (Spearman-Rho = 0.236, P = 0.030), but inversely correlated with the parasympathetically mediated RRI-HFnu-powers (Spearman-Rho = -0.265, P = 0.015).

We conclude that our patients had cognitive and autonomic dysfunction even months to years after the initial TBI. The level of cognitive dysfunction correlated with decreased parasympathetic modulation and baroreflex sensitivity, and with increased sympathetic modulation. Reduced parasympathetic modulation, increased sympathetic modulation and attenuated baroreflex sensitivity are known to indicate increased cardiovascular risk. Together with the cognitive dysfunction seen in our patients, the unfavorable autonomic cardiovascular changes might be factors contributing to the risk of mortality which is known to be increased even years after TBI.

FUNDING SOURCES: This study received partial financial support funded by the International Brain Research Foundation, IBRF, Flanders, NJ.

DO WE NEED A NEW CONCEPT OF NEUROPSYCHOLOGY ?

VOLKER HÖMBERG
Head of Neurology SRH_GBW Bad Wimpfen and Neurology Coordinator for the SRH Group of Hospitals and Clinics, Germany

Over the last 20 years there has been significant progress in designing evidence based strategies for motor rehabilitation. In term of evidence based concepts the field of cognitive rehabilitation seem to lag behind.

One of the major differences is that cognitive rehabilitation is primarily based on derivated constructs such as “attention, memory, concept formation, executive functions” etc. whereas motor rehabilitation is dealing with simple straight forward con-cepts such as: Can you lift your arm or not and if you can move can the quality of this movement (speed, accuracy etc) be improved.
Therefore motor therapies are always closer to everyday life and behavior. Measurements have a higher surface validity.

The usage of elaborate constructs in neuropsychology necessarily induces a lot of noise in studies about "memory", "atten-tion "or other cognitive domains increasing the heterogeneity of data even more than we know from motor rehab.

Historically experimental psychology started with elementary aspects of mental chronometry e.g by measuring something "motor" as reaction times wheres neuropsychology today is using a plethora of abstract elaborate concepts which not necessarily directly relate to observable human behavior.

To come out of this dilemma it maybe useful to go back to more elementary behavioral analysis and look at behavioral prob-lems of individual patients. In this sense, instead of using concepts of memory or attention as disjunct entities, the behavioral problem of how to concentrate on a given text or video and extract and store as much information could be an alternative.

Looking at possible rationales of treatment in the motor domain a differentiation between impairment oriented and compensation oriented treatments has been useful. This is however difficult to transfer into cognitive domains. In the motor domain it appears pretty simple: restoration means to find ways to meas-urably reduce the amount of impairment and increase function of a paretic arm. Restoration of "memory" or "attention" is more difficult to conceive. On the other side it may be feasible in cognitive rehabilitation to train "elementary" processes such as se-lective attention or short term memory as a bottom up approach to gain consecutively in turn improvements of more complex task behavior.

In rehabilitation compensatory strategies play an important role. That is true for the motor domain (e.g. using a cane or some other sort of helping devices or etc.). This may also be true for cognitive problems e.g. using external memory aids etc.

The question is how we can design new strategies for a better rehabilitation of cognitive problems. In my view the best way of doing this is to refrain as much as possible from construct driven approaches and instead go for analysis and consecutive training of "real" everyday life behavior.

In the talk construct vs. the behavioral driven concepts in neuropsychology will be discussed in form of a dialog with other experts entertaining different views.

COGNITIVE IMPAIRMENT IN TBI – A PARTICULAR VIEW THROUGH CONNECTOMICS

DAFIN F. MUREŞANU
Department of Neurosciences "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania

TBI is a field with many unmet needs in medicine and public health. It is a major cause of death and disability and also leads to huge direct and indirect costs to society. Currently the incidence of TBI is increasing.

TBI populations are heterogeneous in terms of mechanism of disease, baseline prognostic risk factors, clinical severity and evolution. This heterogeneity generates complex challenges.

New pharmacological approach together with more basic and clinical research is needed for better targeting TBI therapy to the individuals.

The frequent progression of contusive brain injury indicates that this may constitute a subpopulation of TBI more likely to benefit from acute neuroprotection (in the classic sense) by limiting processes involved in secondary brain damage.

Other mechanisms, and consequently different approaches may be more relevant in patients with diffuse axonal injury, and neuroprotection in a more broad sense also includes strategies and therapies aimed at promoting regeneration or replacement of lost neuronal and glial cells, neuronal circuits, and stimulation of neuroplasticity (neurorecovery).

The primary goal of pharmacological support in TBI is to reduce secondary damage (neuroprotection) and to enhance repair (neurorecovery).
The current presentation will highlight the limits of monomodal drugs and the advantages of multimodal drugs.

METABOLISM MONITORING AND NUTRITION MANAGEMENT IN POLYTRAUMA PATIENTS WITH SEVERE TRAUMATIC BRAIN INJURY (TBI)

DOREL SĂNDESC
Faculty of Medicine, "Victor Babes" University of Medicine and Pharmacy, Timisoara, Romania

INTRODUCTION: In the case of critically ill polytrauma patients the adequate nutritional therapy is one of the main goals to be achieved in the course of treatment. The aim of this study was to emphasize the energetic needs trend in the critically ill polytrauma patients with TBI by applying indirect calorimetry (GE Healthcare, Helsinki, Finland) methods in order to noninvasively monitor the respiratory gases.

MATERIAL AND METHODS: This is a prospective observational study carried out in the Anesthesia and Intensive Care Unit "Casa Austria", "Pius Brinzeu" Emergency County Hospital, Timisoara, Romania. The study received the approval of the institution's Ethics Committee. The energy expenditure (EE) was determined for all patients by indirect calorimetry (IC) (GE Healthcare, Helsinki, Finland). Subsequently we monitored the oxygen consumption (VO2), CO2 production (VCO2), and the respiratory quotient (RQ).

RESULTS: 27 patients were included in the study between November 2017 and February 2018. Hence, for the group where IC was monitored we observed an increasing trend, generally higher than 2000 kcal/day (mean 2,542.63 kcal/day), while for the group where the HB equation was applied, the EE has a relatively decreasing trend, between 1300 and 1800 kcal/day (mean 1548.46 kcal/day). In regard with the ventilator dependency (days), the mean of differences is -3.318714 for patients that received nutrition based on IC, with a standard deviation of 4.44167, 95% CI = -5.527505 to -1.109924 ($p < 0.05$).

CONCLUSION: Adapting the nutritional therapy based on the individual need of each patient can bring significant benefits regarding the outcome of the critically ill polytrauma patient.

REPEATED TIO2-NANOWIRED DELIVERY OF NEUROTROPHIC FACTORS REDUCES PATHOPHYSIOLOGY OF BLAST BRAIN INJURY

HARI SHANKER SHARMA[2]

DAFIN F MURESANU[1],, ARUNA SHARMA[2], JOSÉ VICENTE LAFUENTE[3], Z RYAN TIAN[4], ASYA OZIKZILCIK[5], HERBERT MÖSSLER[6]

1. Dept. Clinical Neurosciences, University of Medicine & Pharmacy, Cluj-Napoca, Romania
2. Dept. of Surgical Sciences, Anesthesiology & Intensive Care Medicine, Uppsala University Hospital, Uppsala University, SE-75185 Uppsala, Sweden
3. LaNCE, Dept. Neuroscience, University of the Basque Country (UPV/EHU), Leioa, Bizkaia, Spain
4. Dept. Chemistry & Biochemistry University of Arkansas, Fayetteville, AR, USA
5. Dept. of Biomedical Engineering, University of Arkansas, Fayetteville, AR, USA
6. Drug Development & Drug Discovery, EverNeuroPharma group, Oberburgau, Austria

Blast brain injury (bBT) is a serious problem in military personnel during combat or peacekeeping operations. The primary and secondary pressure waves created by the blast induces intense brain damage depending on the magnitude and severity and the distance between blast and the victim. Few reports using compressed-air or gas induced blast in the shock tube in the magnitude of 150 to 250 kPa showed unilateral brain damage e.g., neuronal loss, activation of astrocytes and distortion of axonal and synaptic connections after 2 to 12 h bBT. However, studies on drugs modifying bBT induced brain pathology are still lacking.

Previously we have shown that cerebrolysin- a multimodal drug when given alone or using TiO2 nanowired delivery induces marked neuroprotection following brain injury caused by trauma, hyperthermia or concussion. Thus, we examined effects of cerebrolysin following bBT in a rat model.

Equithesin anesthetized Male Wistar rats (age 25 to 30 weeks) were placed in a compressed air driven blast shock tube with head facing. The torso was wrapped to protect from the blast waves. Rats were exposed to blast waves of either 150±5 kPa or 250±8 kPa (measured using a pressure transducer fixed into the shock tube) and allowed to survive 8 or 24 h. Brain edema, blood-brain barrier (BBB) breakdown and cellular injuries were examined using standard protocol.

Our results showed breakdown of the BBB to Evans blue albumin and radioiodine ([131]-I) in the cerebral cortex, hippocampus and cerebellum by 4 to 8-fold from the normal control rats depending on the magnitude of the blast waves. The contralateral side also showed 2 to 4 folds higher BBB leakage after 150 or 250 kPa shock waves, respectively. The brain water content elevated by 6 to 10 fold on the right hemisphere, whereas 4 to 6-fold increase in water content was seen on the

left side. Nissl staining showed pronounced neuronal loss, damage and cell death in the above brain areas that was most prominent on the right side.

Cerebrolysin (2.5 or 5 ml/kg, i.v.) administered 2 and 4 h after bBT (250 kPa) significantly reduced brain pathology following 8 h. However, multiple injections of high doses of cerebrolysin (5 ml/kg, 2,4,6,8 and 10 h after injury) are needed to induce neuroprotection 12 h after bBT. TiO2 nanowired delivery of cerebrolysin (2, 4 and 8 h after bBT) significantly reduced brain pathology at 12 h. These results show that cerebrolysin if given in multiple doses is able to thwart bBT induced brain pathology and TiO2-nanowired cerebrolysin has superior neuroprotective effects.

DEVELOPMENT OF A TBI SPECIFIC HEALTH RELATED QUALITY OF LIFE ASSESSMENT IN CHILDREN, ADOLESCENTS AND THEIR PROXIES

NICOLE VON STEINBÜCHEL
Institute of Medical Psychology and Sociology, University Medical Center, Göttingen, Germany

Introduction: Health related quality of life (HRQoL) steadily gains momentum as an important outcome after traumatic brain injury (TBI) in therapy evaluation, care, health economics and research. HRQoL can be assessed generically, as well as disease-specifically. The latter provides a more detailed insight in the subjective functioning and wellbeing of individuals after TBI supporting rehabilitation planning and evaluation by capturing the special needs of children after TBI.

While HRQoL after TBI in adults can be assessed with the QOLIBRI, Quality of Life after Brain Injury (von Steinbüchel et al. 2010 a and b) instrument. Yet no specific pediatric HRQOL instrument exists. The objective of this study is to develop a multidimensional TBI-specific HRQOL instrument for children and adolescents after TBI (QOLIBRI-Kiddy,Kids/Ados) adapted for three different age groups.

Methods: To capture what concerned children (c) and adolescents (a) after TBI consider important, we conducted 24 focus group (FG) interviews with healthy controls and with children and adolescents after TBI in three age groups (6-7, 8-12, and 13-17 years of age) and their caregivers. Based on the literal transcription of all interviews, 5 experts separately formulated items for assessment. Items were than reduced in number and harmonized in several national and international expert meetings and Delphi rounds to achieve international consensus on selection of items.

Results: Initially we generated 785 items from the FG interviews which we reduced to around 100 items. The same dimensions for C & A with and without TBI were defined, however filled with very different content. Items were reduced to 56 items for age group 6-7 years old, 71 for 8-12 years and 76 for 13-17.

Conclusion: Items will be translated into at least 8 languages (French, German, Spanish, Italian, Dutch, English, Norwegian, and Finnish) and harmonized internationally. After cognitive debriefing and possible adaptation they will be psychometrically tested in final validation studies with 150 participants per age group and language to obtain the ready-to-use instruments.

THE MULTIDIMENSIONAL APPROACH - TOWARDS A NEW GOLD STANDARD IN TBI CLINICAL RESEARCH

JOHANNES VESTER
Senior Consultant Biometry and Clinical Research
idv - Data Analysis and Study Planning, Germany

Leading interdisciplinary research groups recently highlighted the multidimensional nature of TBI, such as, e.g., the International Mission on Prognosis and Clinical Trial Design in TBI (IMPACT), stating that "outcome after TBI is by definition multidimensional" or the US Traumatic Brain Injury Clinical Trials Network Group, pointing out that "multiple measures are necessary to address the breadth of potential deficits and recovery following TBI".

An evaluation of neuroprotection intervention studies conducted in the last 30 years has determined that methodological design flaws are among the major reasons why pharmacological agents fail to demonstrate efficacy. Almost all the inconclusive studies used a single outcome measure approach. This classic approach in clinical TBI trials cannot capture all clinical relevant functional information in survivors of any kind of TBI. Even survivors of mild to moderate TBI may experience lifelong disturbances in the physical, behavioral, emotional, cognitive (memory, attention, reasoning, communication and planning), motor, sensory, perception and social domains of life that may affect specific or global functioning.
The multidimensional strategy is expected to become a key development in TBI clinical research, opening up new horizons for TBI management. Examples from the literature and current study designs in neurosciences are discussed and their implications related to future developments. The CAPTAIN approach is introduced as the first series of trials in TBI history with a true multidimensional aproach based on full outcome scales.

KEY WORDS: Clinical Research, TBI, Multidimensional, Methodology.

CONCUSSION – REVELATIONS OF A COMPLEX CONDITION WITH POTENTIAL LONG-TERM CONSEQUENCES

DAVID WRIGHT
Department of Emergency Medicine, Emory University School of Medicine, Atlanta, Georgia, USA

Traumatic brain injury (TBI) is exceedingly common, with over 57 million hospitalizations worldwide. Over 80% of TBI is categorized as "mild", better known as concussion by the lay press. Once thought to be benign, mTBI is now known to have significant short and long term consequences. Until recently, the pathophysiology and factors that contribute to prolonged recovery and long-term sequella have been poorly understood. Research reveals a complex interplay between genotypic and phenotypic resilience, comorbid conditions, history of prior injury, mechanism of injury, environmental influences, follow-up care, and a host of other elements contribute to the trajectory of recovery and long-term outcome. Novel research methods and innovative approaches, such as causal loop diagraming are being utilized to better understand the disease. Moreover, concussion is difficult to diagnose, in part because it is a hidden disorder with no object pathophysiology measure. Signs and symptoms are often subtle, and hard to recognize. Missed diagnosis can put the patient at increased risk for long term or permanent injury. A more systematic approach is required, especially in the field – such as at a sporting event, or in the emergency department, where competing demands and limited time complicate the evaluation. This lecture will cover the science of concussion, methods for evaluation, and future directions.

CURRICULUM VITAE

ANTÓN ÁLVAREZ
SPAIN

CURRENT POSITION(S):
Director, Medinova Institute of Neuroscienes
Clinical Research Director, QPS-JSW Life Sciences Spain

ACADEMIC TRAINING AND MAIN POSITIONS:

1987	Medical Doctor (M.D.) Degree, Santiago de Compostela University
1987	MD Grade Thesis, Dep. Psychiatry, Santiago de Compostela University
1988	Neuroendocrinology Specialist Master Course, Santiago de Compostela University
1988	Graduate in Psychology, Santiago de Compostela University
1988-90	Doctorate in Psychiatry, Dep. Psychiatry, Santiago de Compostela University
1988-92	Resident-Research Fellow of the Ministry of Education and Science (PNFPI): Dep. Psychiatry, Santiago University & Madrid Complutense University
1992-97	Postgraduate Associated Researcher, Department of Psychiatry, Madrid Complutense University
1997	Psychiatry Doctor, Academic Thesis, Ph.D., Department of Psychiatry, Madrid Complutense University
1997-1999	Post-doctoral Grant (National Plan of Scientific Research & Technical Development) Basic and Clinical Research Director, CIBE, A Coruña
1999-2012	Director of Neuropharmacology and Medical Director EuroEspes Biomedical Research Centre, A Coruña, Spain
2009-	Associated Researcher, Granada University (SICA INVS59201)
2009-	Clinical Research Director QPS-JSW Life Sciences Spain, A Coruña (Spain)
2010-2014	Head of the Research Directorate, Fundación Antidemencia Al-Andalus, Spain
2012-	Director of the Medinova Institute of Neurosciences, Clinica RehaSalud, A Coruña, Spain
2013-	Visiting Professor, Department of Neurosciences, Faculty of Medicine, Iuliu Hatieganu University, Cluj Napoca (Romania))

RESEARCH PROFILE:
Antón Alvarez has 25 years expertise in Basic and Clinical Research on Alzheimer's disease and Neuropsychiatric disorders. He was involved in a number of research projects, including projects funded by Public Institutions, pharmaceutical R&D studies, industrial and R+D+I projects, epidemiological studies and projects funded by the EU. As the result of his research activity Antón Alvarez published more than 100 scientific papers and book chapters.

RUSSELL ANDREWS
USA

Appointment: Ames Associate (Smart Systems & Nanotechnology), National Aeronautics and Space Administration (NASA) Ames Research Center, Moffett Field, California, USA 94035

EDUCATION:
Undergraduate & medical school – Dartmouth College/Medical School, Hanover, NH
Graduate school - Harvard University, Cambridge, MA

RESIDENCY:
Surgical Internship – Walter Reed Army Medical Center, Washington, DC
Neurosurgery Residency – Stanford University Medical Center, Palo Alto, CA
Professional: Faculty member (Neurosurgery) at the following (1986-2001):
University of California, Davis, Medical Center
Stanford University Medical Center
State University of New York Upstate Medical Center
Texas Tech University Medical Center (Chief, Neurosurgery)
Currently: Since 1998: Ames Associate (Smart Systems & Nanotechnology) at NASA Ames Research Center, Moffett Field, CA, USA. Since 2001: Private practice neurosurgery in Silicon Valley/San Jose, CA.

MAJOR COMMITTEES/MEMBERSHIPS:
Aerospace Medical Association
American Association of Neurological Surgeons: Past Chair, International Committee
Asian Congress of Neurological Surgeons – Executive Committee
Bioluminate, Inc. (NASA patent licensee): Scientific Advisory Board
Computer Assisted Radiology and Surgery (CARS): Program Committee

Congress of Neurological Surgeons
Epilepsy Foundation of Northern California: Board Member
European Association of Neurosurgical Societies
European Association for Predictive, Preventive and Personalised Medicine
International Association of Neurorestoratology: VP Neuromodulation
International Conference on Neuroprotective Agents: Co-Director
New York Academy of Sciences (Life Member)
World Federation of Neurosurgical Societies: Education Committee Member

PUBLICATIONS:
Editor, Intraoperative Neuroprotection. Williams & Wilkins, 1996
Author: Too Big to Succeed: Profiteering in American Medicine. iUniverse, 2013
Author/co-author of over 35 book chapters
Author/co-author of over 75 peer-reviewed research articles
Presenter/co-presenter of over 200 presentations at
major national/international scientific meetings (many as invited speaker)

PATENTS:
"Multimodality Instrument for Tissue Characterization" US Patent #6,718,196 (April 6, 2004) to NASA on behalf of RW Mah and RJ Andrews.
"Carbon Nanotube-based Nanoelectrode Array for Deep Brain Stimulation" Patent Application by NASA on behalf of J Li, M Meyyappan, R Andrews, March, 2003.

HEINRICH BINDER
AUSTRIA

Professor Binder was born in 1947. 1972 He completed his medical training at the Vienna medical university. After that he started his residency training at the Vienna neurological clinic guided by Franz Gerstenbrand. He received a comprehensive training including also pediatric neurology. But from the beginning, the training focus was on intensive care medicine and and rehabilitation of the most serious brain damaged patients.

1978 he completed his residency training. After that he was employed as senior physician at the Vienna Neurological clinic. Research priorities have been neurological intensive care

and early rehabilitation. Therefore he was charged with ongoing services of all intensive care units of the Vienna medical university. By the way from 1975 he was also involved on constitution of the computertomographic unit there. Additionally as consultant he was in charge for 5 Viennese pediatric hospitals and one orthopedic hospital till the early 90s.

1982 because of several years of research at a high level 1982 venia decondi as a process called habilitation comparable an associate professor in North America was confered. The heading of his habilitation dissertation was "Coma hepaticum". 1988 he was invested with the university professorship. The heading of his habilitation dissertation was "Coma hepaticum". 1984 as senior staff member he established the first neurological ICU at the Viennese neurological clinic.

Unrewarding organization and general lack of knowledge about the need for neurological rehabilitation led to the founding of the ÖGNR together with Franz Gerstenbrand 1985. Afterwards until 2008 he was secretary general and from 2008 to 2015 he was president and up to now he is board member of the society in charge of education. During this time he represented the OEGNR in the WFNR and took over the chairmanship of the SIG for spinal cord which he has rescinded in the meantime and the SIG for early rehabilitation. 2010 he organized the 6th WCNR in Vienna with over 1600 professional attendants from 71 countries. 1989 as chief physician he took over the management of the Neurologic Hospital "Maria Theresien Schlössel" in Vienna - a Rothschild foundation. From then on the former general neurologic/psychiatric hospital developed into a rehabilitation clinic with main focus on rehabilitation of long lasting severe disorders of consciousness. 2002 under his leadership the Hospital was expanded and affiliated as neurological center in the huge Otto Wagner Hospital. 2016 he has retired.

In the early nineties of last century a hard case of high spinal cord injury special case of high traumatic cross-section was the reason for additional intensive engagement in rehabilitation of spinal cord injuries. And this why it came to contact and further cooperation with Milan Dimitrijevic. from Baylor College of Medicine in Houston. At that time Dimitrijevic was not only a specialist in spinal cord injury but also a pioneer of restorative neurology. 1994 together with Franz Gerstenbrand they founded in threes the Ludwig Boltzmann Institute for restorative Neurology and Neuromodulation which Binder chaired until 2007. During this time, an increasingly intensive cooperation among the Institute as well as the neurological center and the Center for Medical Physics and Biomedical Engineering (Prof. Drexler) and the Institute of Analysis and Scientific Computing (Prof Rattay) of the Technical University Vienna developed till this day. This was the reason why spinal cord was the research focus at last.

2006 during the WCNR in Hongkong for the first time under debate with Mike Barnes president of WFNR, the idea of an international specialized training in neurorehabilitation emerged. This topic was taken up by the then WFNR general secretary Volker Hömberg. With his support after intensive deliberation, the EFNR was founded by Binder and Gerstenbrand in 2009. Binder took over the presidency from 2009 till 2014 and organized the 3rd ECNR 2015. During this time the main task was the development and implementation of a European

curriculum in Neurorehabilitation. In Austria the training according to the curriculum was introduced during his presidency. Also in Romania it was immediately implemented by Prof. Dafin Muresanu in annual teaching courses which Binder regularly participates in lecturing. Binder is member of the management board of WFNR, EFNR, OEGNR, the managing board of the International Danube Symposium. He is also chairman of the SIG "early rehabilitation" of WFNR. He lectures regularly at WCNR, EFNR and congresses or workshops with topics from his special field of research. He has published more than 140 articles about neurological intensive care and neurorehabilitation in brain and spinal cord injury. Below of them are 30 chapters in textbooks and handbooks.

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 2002-2016
SRH Gesundheitszentrum Bad Wimpfen since 2016

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 the cerebellum in motoric learning tasks
Since 2002 Collaboration with the University of Düsseldorf in the field of plasticity after stroke
Since 2009 Collaboration with the Coma Science Group Liege Belgium
Member of the DOC special interest group of the IBIA

MICHAEL CHOPP

USA

Michael Chopp, PhD, joined the Henry Ford Health System in Detroit in 1983. He was appointed Vice Chairman for Research of the Department of Neurology in 1991, Scientific Director of the Henry Ford Neuroscience Institute in 1999, and is the Zoltan J. Kovacs Chair in Neuroscience Research. Dr. Chopp is also Distinguished Professor of Physics at Oakland University in Rochester, MI.

He received his MS and doctorate degrees in Mathematical and Solid State Physics from New York University. After nearly 10 years of working as a Physicist and as a Professor of Physics, Dr. Chopp made a career change and turned his interest to translational research in neuroscience. Dr. Chopp's research has primarily focused on: 1) cellular and molecular biology of ischemic cell injury, 2) the pathophysiology of stroke, traumatic brain injury, peripheral neuropathy, multiple sclerosis, and glioma, 3) combination thrombolytic and neuro and vascular protective therapies for stroke, 4) mechanisms of neuroprotection, 5) cell-based and pharmacological neuro-restorative therapies for stroke, traumatic brain injury and neurodegenerative disease, 6) molecular and cellular mechanisms underlying neurogenesis and angiogenesis and the induction of brain plasticity leading to functional and behavioral recovery after neural injury, 7) treatment of glioma, 8) exosomes/ microRNA for treatment of neurological injury and disease, and 9) magnetic resonance imaging. Dr. Chopp has received multiple awards and recognitions for his research efforts, including the American Heart Association Thomas Willis Lecture Award, the Abraham White Distinguished Science Award, and the Lecture of Excellence and World Stroke Organization Award. Dr. Chopp has 623 peer reviewed publications and has given 414 plenary lectures and invited presentations. He has served on and chaired National Institutes of Health (NIH) study sections and has served as a consultant to government agencies, the U.S. National Institutes of Health, and the pharmaceutical industry.

ALEXANDRU V. CIUREA
ROMANIA

PROFESSIONAL EXPERIENCE

1997-Prezent	Profesor of Neurosurgery University of Medicine and Pharmacy "Carol Davila" Bucuresti Doctorate Coordinator (11 finished PhDs and seven ongoing, unfinished doctorates)
2004-2008	Pro Dean University of Medicine and Pharmacy "Carol Davila" Bucuresti, Decision 15209/07.07.2004 Member of the Board of Professors (2000-2004) (2004-2008) Member of the University Senate (2004-2008)
2009-Prezent	Scientific Researcher First Degree (by national neurosurgical competition)

EDUCATION AND TRAINING

1974	Doctorate in Medicine – PhD.
1979-Prezent	MD Neurosurgeon (National neurosurgical competition)
2007	Master of Science degree in the Management of the Health System (M.Sc.)

PUBLICATIONS
106 PubMed published articles from which 52 indexed ISI Thompson;
Author and co-author of 56 books and chapters published in Romania and abroad regarding neurosurgery, neurology, nutrition and the management of the health system (5 published books as author)

RESEARCH
18 finished research projects

IMPORTANT AWARDS
"Avicenna" Award, awarded by Prof. Dr. M. Samii with the occasion of the 5th WFNS Symposium, Teheran, 2016

Medical Excellence Award, awarded by the Romanian Ministry of Health, 2015
Health Gala Trophy for innovation in medical education, 2011
Emblem of Honor awarded by the Romanian Military Medicine for the exceptional medical activity, 2011
National Presidential Order " Faithful Service " as of Commander, 2000
Romanian Academy Award for the "Neurosurgical Pediatric Pathology" monograph, 1981.

DR. HONORIS CAUSA
Nominated at five universities (Oradea, Galati, Chisinau, Iasi, Constanta)

VISITING PROFESSOR
11 Universities (ex: Harvard University - Boston; INI - Hannover; Mercer University – Atlanta)

MEMBER OF EDITORIAL BOARDS AND SOCIETIES
16 important speciality Journals (ex : World Neurosurgery – USA ; Neurosurgery - USA)
21 memeberships (World Federation of Neurosurgical Societies, Romanian Academy of Medical Sciences, European Association of Neurosurgical Societies, etc.)

SPECIAL SCIENTIFIC CONTRIBUTIONS
Construction of the first tumor tissue bank in Eastern Europe (2003)
Unitube drain – Registered patent at OSIM with no. 00994 / 2005
Coordination of construction of the Center of Excellence in Neurosurgery 2005 (under the Ministry of Health`s patronage)
Hidden Anatomy of Michelangelo (Certificate of Innovation registered at OSIM, 2012)

KARIN DISERENS
SWITZERLAND

Chief of the transversal Acute Neurorehabilitation Unit of the Division of Neurology, in the Department of Clinical Neurosciences, Unitiversity Hosptilal (CHUV) , Lausanne Switzerland

As a spécialist in neurology and in physical medecine and rehabilitation was co-creator of the Swiss Society of Neurology, and on the head of the post acute neurorehabiliation clinics

(1996-2005), than mobile team of neurorehabilitation in the University Hospital (2006-2009) before getting the chief of the transversal Acute Neurorehabilitation Unit of the division of Neurology in the Department of Clinical Neurosciences of the Universitiy Hospital in Lausanne. After contributing to the quality criterias of the acute and post acute neurorehabilitaiton in Switzerland, the main research domain concerns now, the evaluation of the diagnosis of the disorders of consciousness and of the effect of neurosensorial stimulation during the acute phase reinforced by robotic mobilisation and brain computer interface.

MAX HILZ
GERMANY

Studied medicine at the Universities of Cologne and Erlangen-Nuremberg in Germany. He first trained in Anesthesiology and Intensive Care Medicine and in Ear-Nose-and–Throat diseases, and then started his residency in Neurology and Psychiatry at the University of Erlangen-Nuremberg.

He specialized in Neurology, Clinical Neurophysiology, Neurological Intensive Care Medicine and Disorders of the Autonomic Nervous System (ANS). He holds German board certificates in Neurology and Psychiatry and in Psychotherapy. He also passed the board examination of the American Board of Electrodiagnostic Medicine.

He is licensed to practice medicine in Germany, the United Kingdom, and in the State of New York, USA.

From 1992 until 2013, he was Attending and Full Professor of Neurology, Medicine and Psychiatry at New York University, New York, NY. Until 2007, he also served as the Associate Director of the Dysautonomia Evaluation and Treatment Center at New York University. In 2006, he was offered an Endowed Chair and tenured Professorship at New York University. From September 2016 to August 2017, he was the Chair in Autonomic Neurology, and Director of the Clinical Department of Autonomic Neurology at the University College London, Institute of Neurology, Queen Square, London, UK.

Currently, he is Professor of Neurology at the University of Erlangen-Nuremberg in Erlangen, Germany. Since June 2015, he is also Adjunct Professor of Neurology at Icahn School of Medicine at Mount Sinai, New York, NY, USA.

From September 2016 to August 2017, he was the Chair in Autonomic Neurology, and Director of the Clinical Department of Autonomic Neurology at the University College London, Institute of Neurology, Queen Square, London, UK.

Professor Hilz has trained many students and fellows form all over the world, including fellows of the Chinese Scholarship Council. He is a member of 17 national and international scientific societies and is on the board of several autonomic nervous system societies. He currently co-chairs the Autonomic Nervous System Subspecialty Panel of the European Academy of Neurology, EAN. He also is Past-President of the German Autonomic Society, Past-President of the European Federation of Autonomic Societies, and Past-Chair of the Autonomic Section of the American Academy of Neurology. He is ad hoc reviewer for more than 25 international scientific journals, a member of the editorial board of Clinical Autonomic Research, and Associate Clinical Editor of Autonomic Neuroscience: Basic and Clinical.

He co-authored the guidelines of the German Neurological Society on syncope, the guidelines on erectile dysfunction and the guidelines of the German Diabetes Society on diabetic neuropathy. He has published more than 300 original and review articles in peer-reviewed journals and chapters in textbooks and presented his work at several hundred scientific conferences.

Prof. Hilz is experienced in the examination of small nerve fiber diseases and disorders of the peripheral and central autonomic nervous system, including hereditary sensory and autonomic neuropathies, diabetic neuropathies, and Fabry disease, and central autonomic disorders. He studied the pathophysiology of Familial Dysautonomia, also known as Hereditary Sensory and Autonomic Neuropathy Type III, of Fabry disease, and the effects of brain lesions of various etiologies on the central autonomic network and on autonomic function.

He also served as an advisor to the European Medicines Agency, EMA, on issues related to autonomic nervous system dysfunction.

VOLKER HÖMBERG
GERMANY

Prof. Hömberg had his medical education at the Universities of Düsseldorf, Freiburg and Boston Massachusetts. After spending electives in Neurology at Boston City Hospital and the National Hospital for Nervous Diseases Queens Square London he was a research fellow at the C. and O. Vogt Institute for Brain Research in Düsseldorf. In 1981 he started a residency in neurology with Prof. Hans Freund at Heinrich Heine University Düsseldorf. In 1987 he was appointed Director of the Neurological Therapy Centre (NTC) a newly founded Institute at Heinrich Heine University in Düsseldorf. He was also founding Director of the NTC in Cologne . He was involved in the setup of many in-and outpatient rehabilitation hospitals in Germany. In 2001he started the St. Mauritius Therapy Clinic in Meerbusch near Düsseldorf and since 2011 he is Director of the Dept. of Neurology at the Gesundheitszentrum Bad Wimpfen and works as senior neurology group leader for the SRH-Group, one of the biggest hospital groups in Germany.

He was founder, President and Vice President of the German Society for Neurorehabilitation for many years. He serves as Secretary General for the World Federation of Neurorehabilitation (WFNR) for more than 12 years and is Vice President of the European Federation of Neurorehabilitation Societies. (EFNR)

He is regular reviewer and co-editor for many international peer reviewing journals.

He is regular (co) -programme chairman for neurorehabilitation for major international meetings as the World- and European Neurorehabilitation Congresses (WCNR, ECNR), Controversies in Neurology (CONy) and the European Stroke Congress (ESC).

He has published more than 250 articles in international peer reviewed journals and many book chapters. His primary scientific interest are the fields of motor rehabilitation, cognition epistemiology, neurological music therapy and pharmacology in neurorehabilitation.

DAFIN F. MUREŞANU
ROMANIA

Professor of Neurology, Senior Neurologist, Chairman of the Neurosciences Department, Faculty of Medicine, "Iuliu Hatieganu" University of Medicine and Pharmacy Cluj-Napoca, President of the European Federation of Neurorehabilitation Societies (EFNR), Past President of the Romanian Society of Neurology, President of the Society for the Study of Neuroprotection and Neuroplasticity (SSNN), member of the Academy of Medical Sciences, Romania, secretary of its Cluj Branch. He is member of 17 scientific international societies (being member of the American Neurological Association (ANA) - Fellow of ANA (FANA) since 2012) and 10 national ones, being part of the executive board of most of these societies.

Professor Dafin F. Muresanu is a specialist in Leadership and Management of Research and Health Care Systems (specialization in Management and Leadership, Arthur Anderson Institute, Illinois, USA, 1998 and several international courses and training stages in Neurology, research, management and leadership). Professor Dafin F. Muresanu is coordinator in international educational programs of European Master (i.e. European Master in Stroke Medicine, University of Krems), organizer and co-organizer of many educational projects: European and international schools and courses (International School of Neurology, European Stroke Organisation summer School, Danubian Neurological Society Teaching Courses, Seminars - Department of Neurosciences, European Teaching Courses on Neurorehabilitation) and scientific events: congresses, conferences, symposia (International Congresses of the Society for the Study of Neuroprotection and Neuroplasticity (SSNN), International Association of Neurorestoratology (IANR) & Global College for Neuroprotection and Neuroregeneration (GCNN) Conferences, Vascular Dementia Congresses (VaD), World Congresses on Controversies in Neurology (CONy), Danube Society Neurology Congresses, World Academy for Multidisciplinary Neurotraumatolgy (AMN) Congresses, Congresses of European Society for Clinical Neuropharmacology, European Congresses of Neurorehabilitation).

His activity includes involvement in many national and international clinical studies and research projects, over 400 scientific participations as "invited speaker" in national and international scientific events, a significant portfolio of scientific articles (189 papers indexed on Web of Science-ISI, H-index: 20) as well as contributions in monographs and books published by prestigious international publishing houses. Prof. Dr. Dafin F. Muresanu has been honoured with: „Dimitrie Cantemir" Medal of the Academy of The Republic of Moldova in 2018, Ana Aslan Award 2018 - "Performance in the study of active aging and neuroscience", for the contribution to the development of Romanian medicine, National

Order "Faithful Service" awarded by the President of Romania in 2017; "Iuliu Hatieganu" University of Medicine and Pharmacy Cluj-Napoca, Faculty of Medicine, the "Iuliu Hatieganu Great Award 2016" for the best educational project in the last five years; the Academy of Romanian Scientists, "Carol Davila Award for Medical Sciences / 2011", for the contribution to the Neurosurgery book "Tratat de Neurochirurgie" (vol.2), Editura Medicala, Bucuresti, 2011; the Faculty of Medicine, "Iuliu Hatieganu" University of Medicine and Pharmacy 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.

DOREL SĂNDESC
ROMANIA

PRESENT POSITION
Past-President, Vice-President, Romanian Society of Anesthesia and Intensive Care
President, Expert Comission, Ministry of Health
Council, European Society of Anesthesiology(ESA)
Vice-Rector and Professor of Anesthesia and Intensive Care, "V. Babes" University of Medicine and Pharmacy Timisoara, Romania

MEDICAL EDUCATION, TRAINING
1. University of Medicine and Pharmacy, Cluj-Napoca, Romania
2. Training in Anesthesia and Intensive Care , "V. Babes" University of Medicine and Pharmacy, Timisoara, Romania
3. Fellowships in Anesthesia and Intensive Care: England, Holland, France
4. Diploma of In-Depth Training in Anesthesia and Intensive Care, Academy of Lyon, France

SCIENTIFIC ACTIVITY
I. Publications in extenso:
I.1. 33 articles in ISI cited Journals
I.2. 38 articles in Pubmed cited Journals

II.Monographies, textbooks
II.1. Author/Coauthor: 21
II.2. Author of chapters: 45
III. Research activity:
-Research grants accessed by national competition: 7(seven)
-Principal Investigator in International Clinical Trials: 22(twenty-two)

trials
IV. PhD in Anaesthesiology and Intensive Care
V. A patent for Invention No. A00783/6th of October 2006, as co-author for "Artificial breathing for small lab animals with a new respiratory valve".
VI. Director/Organizer of 20 national and international scientific meetings
VII.Editor-in-Chief, Romanian Journal of Anesthesia and Intensive Care
VIII. Member in the board of seven romanian medical journals
IX. Member of eight scientific medical societies, romanian and international
IX. Honorary Member of the Israelian Society of Anesthesia and Intensive Care

HARI SHANKER SHARMA
SWEDEN

Hari Shanker Sharma, Director of Research (International Experimental Central Nervous System Injury & Repair, IECNSIR), University Hospital, Uppsala University is Professor of Neurobiology (MRC), Docent in Neuroanatomy (UU) and is currently affiliated with Department of Surgical Sciences, Division of Anesthesiology and Intensive Care Medicine, Uppsala University, Sweden. Hari Sharma was born on January 15, 1955 in an Industrialist town Dalmianagar (Bihar), India. He did his Bachelor of Science with Honors from the prestigious L. S. College Muzaffarpur in 1973 and secured 1st position in his batch. He obtained his Master Degree from Bihar University with special expertise in Cell Biology in 1976 and awarded Gold Medal of Bihar University for securing 1st potion in the 1st Class. Hari Sharma joined the group of Professor Prasanta Kumar Dey, a neurophysiologist by training in the Department of Physiology, Institute of Medical; Sciences, Banaras Hindu University, Varanasi in 1977 to obtain Doctor of Philosophy Degree (D.Phil.) in Neurosciences and was awarded Ph.D. in 1982 on "Blood-Brain Barrier in Stress." Hari Sharma after carrying out a series of Government of India funded Research Projects on the BBB and brain dysfunction (1982–1987), joined the lab of Neuropathology at Uppsala University with Professor Yngve Olsson in 1988 to investigate passage of tracer transport across the BBB caused by stress or traumatic insults to the Brain and Spinal cord at light and electron microscopy. Dr. Sharma awarded the prestigious Alexander von Humboldt Foundation Fellowship of German Government (1989–1991) to work on hyperthermia induced BBB dysfunction at the ultrastructural level in the laboratory of Professor Jorge Cervós-Navarro (a living "Legend in Neuropathology in Europe"). Dr. Sharma joined again Uppsala University and established a network of collaboration on "Experimental CNS Injury Research Group" as a lead investigator with eminent collaborators in various parts of Europe, USA, and Australia (1991–). On his work on hyperthermia Dr. Sharma received the prestigious Neuroanatomy

award "Rönnows Research prize" of Uppsala University for "best neuroanatomical research of the year 1996" followed by the Award of the Degree of Doctor of Medical Sciences of Uppsala University in Neuroanatomy in 1999 and selected for the Best Thesis Award of the Medical faculty, "The Hwassers Prize" of 1999. On his meticulous works on the Blood Brain barrier and Brain edema (2000–2003) Dr. Sharma earned the prestigious title of "Docent in Neuroanatomy" of Medical Faculty, Uppsala University in April 2004. Currently his main research interest is Neuroprotection and Neuroregeneration, in relation to the Blood-brain barrier in stress, trauma, and drugs of abuse in health and disease.

Dr. Sharma on his research on brain pathology and neuroprotection in different models received the prestigious awards from The Laerdal Foundation of Acute Medicine, Stavanger, Norway, in 2005 followed by Distinguished International Scientists Collaboration Award by National Institute on Drug Abuse (NIDA), Baltimore, MD (2006–2008). His recent work on 5-HT3 receptor mediated neuroprotection in morphine withdrawal induced neurotoxicity won the coveted prize of Best Investigator Award 2008 and Best Scientific Presentation by European Federation of the International Association for Study of Pain (ISAP), and Awarded during their VI Annual Meeting in Lisbon, September 9–12, 2008. His recent research is aimed to find out the role of nanoparticles in Neurodegeneration and Neuroprotection using various treatment strategies that is supported by European Aerospace Research and Development (EOARD), London, UK and US Air Force Research Laboratory, Wright Patterson Air Force Base, Dayton, Oh, USA. On his works on Blood–brain barrier in hypertension and diabetes together with Romanian colleagues, University of Medicine and Pharmacy "Iuliu Hatieganu," Cluj-Napoca, Romania awarded Dr. Sharma with Honorary Doctorate of Medical Sciences in 2009. Dr. Sharma's work over 30 years on the blood-brain barrier and brain edema won him the US Neurosurgeon Dr. Anthony Marmarou Award (2011) by the International Brain Edema Society at their 15th Congress in Tokyo, Japan, November 20–24, 2011. His works on Nanoneuroscience and development of nanomedicine to treat the CNS injuries has won accolades at various Government and International Scotties or Organization across the World. Accordingly Dr Sharma was decorated with the most prestigious "Hind Rattan Award 2012" (Jewel of India) on the eve of Republic Day of India 25th January 2012 and Mahatma Gandhi Pravasi Gold Medal on October 12, 2012 in House of Lords, London, UK. Based on his outstanding contribution in Nanoneuropharmacology and nanodrug delivery to treat central nervous system (CNS) diseases including Neurodegenerative diseases such as Alzheimer's and Parkinson's Hari Sharma bestowed with Prestigious Gujarat Govt. International Visionary Award 2012 in a glittering function in Ahmedabad, Gujarat on Nov 23, 2012. His further research on co-morbidity factors e.g., hypertension or diabetes may alter pathophysiology of brain injuries and require higher drug dose or nanodrug delivery of neuroprotective agents to minimize brain dysfunction is recognized by Govt. of India by presenting him one of the coveted "Bharat Jyoti Award 2013" (Glory of India) by His Excellency Governor Balmiki Prasad Singh in Hotel Le Meridien, New Delhi on Jan 12, 2013. Dr Sharma also received the highest Award of the Govt. of India "Navrattan Award 2013" (Nine Jewels of India) on the eve of 64th Republic Day of India (25th January 2013) by His Excellency Governor Bhishma Narain Singh, in Ashok Hotel, New Delhi. Hari Sharma is Founding President of the Global College of Neuroprotection & Neuroregeneration (2004-); Elected President of International Association of Neurorestoratology (IANR) (2014-); and selected Senior Expert of Asia-Pacific CEO Association, Worldwide (APCEO) (2012-) for his contribution to uplift scientific research in many countries Globally that may have better economic and social benefit for

the mankind. Hari Sharma awarded coveted National Award "Sword of Honor" 2015 by Govt. of India on the eve of 66th Republic Day of India 25th January 2015 in New Delhi Eros Hotel International during the 34th Non-resident Indian (NRI) conclave by Speaker of Lok Sabha (Indian Parliament) the Hon'ble Mrs Meira Kumar of Indian national Congress (INC) Party for the continued extraordinary achievement in nanomedicine for public health awareness and possible therapeutic measures.

Based on his expertise in Nanoneuroscience, Hari Sharma was also invited to organize and chair Nanosymposium in Society for Neuroscience meetings in Chicago (2009), San Diego (2010), Washington DC (2011), New Orleans (2012), San Diego (2013) and Washington DC (2014, Nov 15-19, 2014); Chair Neurobiology Symposium 14th Int. Amino Acid & Peptide, Vienna, Austria; Keynote speaker & Chair Nanotechnology-2015, Frankfurt, Germany. Hari Sharma is also the recipient of Prestigious US TechConnect Global Innovation Award 2013 at the National Innovation Summit & Innovation Showcase, Washington DC May 12-16, 2013 on his work on Nanowired cerebrolysin in Neuropathic Pain, followed by Nanodelivery of Cerebrolysin and Neprilysin for the treatment of Alzheimer's disease, Washington DC, May 14-17, 2017. This investigation is now selected for Defense Innovation in Miami Florida Oct 3-5, 2017 for further funding by Dept of Defense (DOD, US Govt). Hari Sharma Served as one of the Poster Judges in 2014 180th Annual Meeting of American Association of Advancement of Science (AAAS) Held in Chicago, IL, USA Feb 13-17, 2014 followed by 181st Annual Meeting of American Association of Advancement of Science (AAAS) held in San José, CA, USA Feb 12-16, 2015; 182nd AAAS Annual Meeting in Washington DC, USA Feb 11-15, 2016 & 183rd Annual Meeting of AAAS held in Boston, MA, USA Feb 16-20, 2017. Hari Sharma has published over 350 research papers and 85 reviews, 14 monographs, and 80 international book chapters and edited 18 book volumes with Current H-index = 43 (ISI Database) as of today http://apps.webofknowledge.com/CitationReport.do?product=WOS&search_mode=CitationReport&SID=F4HK58CYuRYrlSI6qbC&page=1&cr_pqid=1&viewType=summary&colName=WOS. He served as Guest Editor of Curr. Pharm. Desig. (2005, 2007, 2010–); J Neural. Transmiss. (2006, 2011–) and is the founding Editor-in-Chief of Int. J. Neuroprotec. Neuroregen. (2004–), UK and the European Editor of Central Nervous system-Neurological Disorders Drug Target (2013-). Dr. Sharma is on board of various International Journals including CNS and Neurological Disorders-Drug Targets, USA (2010), Journal of Neurodegeneration and Regeneration, USA (2009–); Austin Journal of Nanomedicine & Nanotechnology (2014-); and is associate editor of Journal of Nanoscience and Nanotechnology (Nanoneuroscience 2006–), USA, Review Editor—Frontiers in Neuroengineering (2007–), Frontiers in Neurorestoratology, and Associate Editor of Frontiers in Aging Neuroscience (2008–), Frontiers of Fractal Physiology (2010–), Switzerland, Journal of Neurorestoratology, Dove Medical press, London, UK (2012–), WebMD Central, Neurology Faculty, Advisory Board Member (2010–), World Journal of Pharmacology (2011–), Journal of Physical Medicine and Rehabilitation, USA (2012–). Dr. Sharma served as volume editor of several progress in Brain research series (Volumes 104, 115, 162 and 180), International review of Neurobiology (Volume 82 and 102) and other Springer Volumes on Spinal cord injury (1988) and Handbook of Neurochemistry (2009) apart from stand alone books (Elsevier, Springer and Academic Press since 1994). His latest edited and contributed Reference Book Drug and Gene Delivery to the Central Nervous System for Neuroprotection. Nanotechnological Advances from Springer Nature Publishing (June 2017; Sharma, Muresanu & Sharma Eds.) became a bestseller book on the subject. His new

Volume of International review of Neurobiology (IRN) 137 "Nanomedicine in CNS Injury & Repair" Edited by Hari S Sharma & Aruna Sharma Academic Press, Elsevier, San Diego, CA, USA is just published on November 14, 2017. Dr. Hari Sharma is invited to join several National Academies of repute including New York Academy fo Science, USA (since 1994–); International Academy of Stress, New York (2003–), Swedish Academy of Pharmaceutical Sciences (2010–). Dr. Sharma has served as an expert evaluator and advisor to various Boards, Councils and Institutions for their Research Grants including Wellcome Trust, London, UK (2011–); Catalan Agency for Health Information and Quality, TV3 (2010–), European Commission Projects (2002–), European Nanomed Council (2009–), Ministry of Health Science Foundation; Medical research Council and University Commission of Grants in various countries in Europe, USA, UK, Canada, Hong Kong, Singapore and in Australia. Some of the notable organizations include: Australia and New Zealand Health Council (2000–); University Commission of Grants, Hong Kong (2002–), Singapore Medical Council, Singapore (2003–); UK Charity Organization "Research on Ageing: Help the Aged" (2003–); Euro Nanomed (2010–). Dr. Sharma is designated as ambassador of the City of Uppsala 2007, by Uppsala County administration and Uppsala Tourism for promoting Uppsala, Sweden as International Research Collaboration/Meetings and Conference Destination. Dr. Hari Sharma is married to Aruna Sharma (nee Bajpai) since 23rd April 1979 and has two sons. Dr Sharma is designated as Visiting Professor, University of Basque Country, Bilbao, Spain supported by Basque Govt. Foundation. His political affiliation belongs to Swedish Social Democrat Party (Socialdemokraterna, Sverige) where he is associated with the development of Education and Research matters in Sweden actively.

NICOLE VON STEINBÜCHEL

GERMANY

Since 2004/2005	Director of the Department of Medical Psychology and Medical Sociology, University Medical Center, Georg-August-University of Göttingen
2001-2004	Associate Professor (C4) of Gerontopsychology at Geneva University and Head of the Neurogerontopsychology Unit, Department of Psychogeriatrics, Geneva University Hospital
1999-2000	C3-Research Professor of the Dorothea-Erxleben Foundation, Magdeburg University
1993-1997	C3-Professor of Medical Psychology, Institute of Medical Psychology (IMP), Munich University (LMU)
1997	Postdoctoral thesis ("Habilitation") in „Clinical Psychology

	and Neuropsychology", Leopold-Franzens University, Innsbruck
1987-1993	Graduation (Dr. rer. biol. hum.) and scientific researcher at the IMP, LMU
1985	Diploma in psychology at the Institute of Psychology, Munich University, studies in philosophy and history of art

Main areas of work (Selection)
Neuropsychology (aging, dementia, stroke, TBI), cognition, (intercultural) health-related quality of life research, currently outcome work package leader of the CENTER-TBI-Study of 5000 patients after traumatic brain injury (TBI) at four time points in two years.

Offices (Selection)

1998-2002	Vice-Chair of the German Society of Medical Psychology
2001-2005	Member of the board of the Swiss Society of Psychology
Since 2003	Member of the board, vice-treasurer of the Academia, currently Vice President of the Multidisciplinaria Neurotraumatologica (AMN)
2007-2010	Member of the board of the European Brain and Behaviour Society (Scientific Committee)
2008	Founding member of the International Society for Clinical Neuromusicology
2008-2011	President of the QOLIBRI 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 the leading biometrician of the German GUDHIS project in Traumatic Brain Injury, involving 10 Departments of Neurosurgery in Germany.

Since 1982 he holds > 100 advanced training courses on biometry for professionals in clinical research as well as teaching courses for universitary institutions and international societies.
Since 1995 he is Senior Consultant for Biometry & Clinical Research. He planned and evaluated about 150 randomized clinical studies worldwide.

Since 2013 Elected Member of the International Scientific Committee of the Society for the Study of Neuroprotection and Neuroplasticity (SSNN).
Since 2013 Elected Member of the World Academy for Multidisciplinary Neurotraumatology (AMN), since 2016 Elected Member of the Presidium of the AMN.
Since 2015 Member of the PhD Neuroscience International Faculty, "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania

Since 2017 Invited Associate Professor, Department of Neuroscience, "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania
He is head of the Multidimensional Department at the Institute for Data Analysis and Study Planning, and statistical peer reviewer for leading medical journals such as Stroke (American Heart Association).
He is member of various international Advisory Boards and Steering Committees including participation as biometric expert in regulatory authority panels, in FDA, EMA, and BfArM hearings, and in workshops of the International Biometric Society (IBS)

KLAUS VON WILD
GERMANY

MD PhD, Dr.h.c. Distingished Prof. mult.

Appointments: Professor for Neurosurgery and for functional neurorehabilitation and restorative neurosurgery of brain and spinal cord lesions, Med. Faculty Univ. Muenster & INI, International Neuroscience Institute, Hanover, D. Former head neurosurgical dept. and special unit for early neurosurgical rehabilitation at Clemens Academic Hospital, Muenster, D.
2003 onwards CEO kvw neuroscience consulting GmbH;
2009 onwards.CEO Dres. Klaus and Monika von Wild non-profit Foundation Muenster, D.
Member of the Kuratorium ZNS- Hannelore-Kohl- non-profit Foundation, Bonn & Neurobionik of non-profit Foundation, Hanover, D.

Honorary founding president international AMN, CNM, EMN, MASSIN, and QOLIBRI eV.
Honorary member of numerous international and national Academies and Societies.
Research/ lecturing: neurosurgical rehabilitation, microsurgical restoration of SCI; HRQoL. after TBI and SCI; Music and Mind
Publication: 18 books; 37 book chapters; 240 articles in international and national journals; 2 scientific films.
Editorial board member of national/international journals.

DAVID WRIGHT

USA

Dr. Wright, is a Professor and the Interim Chair of the Department of Emergency Medicine at Emory University School of Medicine. He also Co-Directs the Injury Prevention Research Center at Emory and Grady, and Directs the Emergency Neurosciences Laboratory, in the Department of Emergency Medicine. He is a board certified emergency medicine physician practicing at Emory affiliated hospitals and Grady Memorial Hospital, Atlanta's premier Level 1 Trauma Center. He is actively involved in both the preclinical and clinical assessments of traumatic brain injury, stroke and other acute neurological conditions. He was the PI of the ProTECT III multicenter clinical trial of progesterone for acute traumatic brain injury and serves as the southeastern Hub PI of the Neurological Emergencies Treatment Trials network, Co-PI of the Georgia StrokeNet network, and Hub PI for the newly funded Strategies To Innovate Emergency Care Clinical Trials Network (SIREN). He has extensive clinical trial leadership and operational experience.

He is also an adjunct faculty in the Department of Biomedical Engineering at the Georgia Institute of Technology and works closely with an elite team of engineers at the Georgia Tech Research Institute where he participates in numerous concussion research and technology development endeavors. He is the Co-inventor of the DETECT technology, a rapidly deployable, easily administered, comprehensive system for the assessment of concussion and other neurological disorders.