



The 9th National Conference of ASNER, The Romanian Society of Electrodiagnostic Neurophysiology

**CN2017, Căciulata, Vâlcea, Romania
October 13 – October 15 2017**

Program & Abstract book



Scientific partners:



International Federation of Clinical Neurophysiology

Dear Friends,

It's again October, and that means it is again time for the national conference of Clinical Neurophysiology. We are now starting this scientific event for the 9th time, so I suppose we are entitled to call it a tradition. Some of you have participated every year, many of you have attended a few times, and others are newcomers, but all of us have one thing in common, namely our passion for neurophysiology. We have prepared a scientific program that will contain a plenary session, and, workshops in EEG, EMG. Again, we have important guests who have accepted our invitation for this event.

So we are expecting few days of intense scientific activity with ample opportunity for networking and to make new friends.

The conference was awarded **11 CME credits**.

Welcome to the 9th edition of the ASNER National Conference !

Sincerely,

Tudor Lupescu M.D. Ph.D.

ASNER President

contact@asner.org

<http://www.asner.org>

<https://www.facebook.com/asner.org/>

Ioana Mindruta, M.D. Ph.D.

ASNER Vice-President

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

ioanamindruta@me.com

Ionela Codita, M.D.

ASNER Secretary

Neurology Department of Elias University Emergency Hospital, Bucharest, Romania

codion2001@yahoo.com

Ana-Maria Cobzaru, M.D.

ASNER Treasurer

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

cobzarica@yahoo.com

Mihai Moldovan, MD, PhD

ASNER Scientific director

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

moldovan@sund.ku.dk

Friday, Oct 13

13.00 - 16.00: EMG Workshop (Tudor Lupescu, Reinhard Dengler)

16.00 - 16.30: **Coffee Break**

16.30 - 19.30: EEG Workshop (Ioana Mindruta, Troels Wesenberg Kjaer)

Mihai Malaia - Amplitude & polarity of EEG signals

Floriana Boghez – Neurophysiology in narcolepsy patients

Amalia Ene - Importanta polisomnografiei in evaluarea pacientilor cu alfa-synucleinopatii

Irina Popa - Testing epileptic seizures during video-electroencephalography for better anatomo-electro-clinical correlations

Ioan-Radu Carcalici - EEG pattern of drug resistant epilepsy

Saturday, Oct 14 – Part 1

8.30 - 9.00: Opening of the conference

Session 1 (chair: Tudor Lupescu)

9.00 - 10:00 Reinhard Dengler - State of the Art in ALS: Clinic and Research

10.00 - 10.30 Tudor Lupescu - Chronic Inflammatory Demyelinating Polyneuropathy (CIDP) – a logical approach

10.30 - 11:00 Mihai Moldovan – Do we need nerve excitability testing by threshold-tracking?

11.00 - 11.30 Coffee Break

Session 2 (chair: Ioana Mindruta)

11:30 - 12: 30 Troels Wesenberg Kjær, Clinical use of ultra-long-term EEG-monitoring - the cross road between traditional diagnostics and health devices

12.30 - 13.00 Ioana Mindruta - Electro-clinical patterns and new classification in epilepsies related with focal cortical dysplasia

13:00 - 13:20 Cosmin Serban, Towards a neurophysiological EEG reactivity monitor (NERMO) to assess coma severity

13.20 - 14.30 Lunch Break

Saturday, Oct 14 – part 2

14.30 – 15.15 **Masă rotundă: Boala Pompe - abordare clinică și terapeutică. Simpozion organizat cu sprijinul Sanofi Genzyme.**

Tudor Lupescu-Scurta prezentare Boala Pompe

Marian Cristian Feticiu - Boala Pompe, studiu caz pacient adult

Diana Barca - Boala Pompe, studiu caz pacient pediatric

15.15 – 15:45 **Masă rotundă.** Amalia Ene, Ionela Codiță, Izabela Popa – Evaluarea pacientului cu polineuropatie amiloidotică transtiretinică. **Simpozion organizat cu sprijinul Pfizer**

15:45-16:00 Coffee Break

Session 3 (chair: Mihai Moldovan)

16:00 – 16:30 Mircea Moldovan - Clumsy hand -case presentation

16:30 – 17:00 Nicu Draghici - Median nerve ultrasound as a screening tool in carpal tunnel syndrome overlapped with diabetic neuropathy

17:00 – 17:20 Marian Cristian Feticiu - GBS or not?- A case of acute poliradiculoneuritis with unpredictable evolution and multiple co-morbidities

17:20 – 17:40 Andrei Daneasa - Parallel direct electrical stimulation and somatosensory evoked potentials for primary sensory cortex mapping: a case study

17:40 – 18:00 Izabela Popa - Motor neuron disease spectrum-a case study

18.15 – 18.45 ASNER General assembly

20:00 Galla dinner

Sunday, Oct 15

9.00 - 9.30 Simona Petrescu: "O privire atenta asupra complexitatii COPAXONE ". **Simpozion organizat cu sprijinul TEVA România**

Session 4 (chair: Ioana Mindruta)

9.30 - 10.00 Marc Guenet - Stereoelectroencephalography (SEEG) technique, results and recommendations

10.00 - 10.30 Marc P. Sindou. Surgery in the DREZ (dorsal root entry zone). From neurophysiological concepts to clinical practice

10.30 – 11: 00 Andrei Brinzeu - Intraoperative Monitorig for Spinal Cord Surgery

11:00 - 11:30 Coffee Break

Session 5 (chair: Ionela Codita)

11:30- 11:50 Bogdan Florea - Telemedicine in Epilepsy - 1 year in Romania

11:50-12:10 Dan Filip - Neurophysiological intraoperative monitoring in cerebral awake surgery

12:10 - 12:30 Ionela Codita - Challenging situations during spinal intraoperative neuromonitoring-a case report

12:30 Closing discussions, certificates and feedback

State of the Art in ALS: Clinic and Research

Reinhard Dengler, M.D.

*Department of Neurology, Hannover Medical School,
Hannover, Germany*

This talk will deal with some of the newest developments in the field of familial and sporadic ALS. The modern state of genetics and of protein aggregate formation will be presented and the overlap with some forms of frontotemporal lobe dementia (FTLD). The actual diagnostic criteria based on the revised version of the El Escorial Criteria and their addendum, the so called Awaji Criteria will be described. The important role of clinical neurophysiology in the diagnosis of ALS will be especially stressed. Although imaging, especially functional MRI, can currently not yet contribute to the diagnosis it has a role in the understanding of some pathophysiological aspects and of the progression of the disease. Riluzole is licensed for the treatment of ALS in Europe and Edaravone is additionally licensed in the US and Japan. Modern experimental treatment approaches including cell transplantation or molecular biological techniques will be discussed. Finally a summary and an outlook at next developments will be provided.

Prof. Em. Reinhard Dengler MD.

retired Director of the Department of Neurology, Hannover Medical School (MHH); member of the Advisory Board of MHH;

Dengler.Reinhard@mh-hannover.de



Academic appointments:

01.08.1989 Professor of Neurology, University of Bonn, Vice-Chairman Neurology,

01.12.1992 - 09, 2015 Professor of Neurology, Hannover Medical School, Director of the Department of Neurology and Clinical Neurophysiology,

Other professional activities:

Current member of the executive board of the German Society of Clinical Neurophysiology (DGKN); current member of the executive board of the International Federation of Clinical Neurophysiology (IFCN); Vice President of the German Society for Neuromuscular Diseases (DGM).

Research focus:

- clinical neurophysiology,
- neuromuscular diseases;
- motor neuron diseases
- central movement disorders

Honors and Awards:

1987 Richard-Jung-Award of the DGKN (Clinical Neurophysiology)

2003 Appointment as foreign member of the Bulgarian Academy of Sciences

2005 Prix „Theophile Gluge“ of the Royal Belgian Academy of Sciences

2015 Honorary Member of the German Society of Clinical Neurophysiology

2016 Robert Schwab Award of the American Clinical Neurophysiological Society (ACNS)

Clinical use of ultra-long-term EEG-monitoring - the cross road between traditional diagnostics and health devices

Troels Wesenberg Kjær

Zealand University Hospital, DK

New health technology now allows for unobtrusive recording for months and years of a range of physiological parameters including electroencephalogram

(EEG) and electrocardiogram (ECG). Traditionally EEG-recordings are limited to hours-days rarely more than a week. In cardiology the loop-recorder has been developed to detect and save abnormal rhythms, but without storing intermediate data. We currently work on three different ways to obtain continuous data on the ultra-long-time range of months to years. The talk will discuss three different technical platforms with various advantages and disadvantages.

Ear-EEG comprises of up to 15 electrodes placed in an ear-plug in one or both ears. There is a central canal allowing for passage of sound. EEG is recorded in a matchbox-sized amplifier fixed to body or clothing.

Simultaneous ear-EEG and standard-EEG reveals high correlation between signals in the range from 2-25 Hz. At lower and higher frequencies noise tend to appear. The ear-EEG platform has found to be useful in sleep and epilepsy.

EEG-24/7-subQ is an implantable chip placed under the skin behind the ear with a 11 cm long 3-lead electrode pointing in any relevant direction in the subcutaneous space. This device is implanted in a 10-15 min procedure and after healing of the skin there is no skin penetration. Power is supplied from an external 13 mm - antenna placed over the chip, which also receives the EEG signal. Data in the range from 0.1 - 25 Hz is available in high quality and highly correlated to standard EEG. The electrode can be placed almost anywhere on the skull, but when placed the position is fixed. This allows for monitoring well defined foci - even if small. The EEG-24/7-subQ solution has successfully been used to detect epileptic interictal and ictal discharges, hypoglycemia and sleep.

Troels Wesenberg Kjær,
MD, PhD, Professor

neurology@dadlnet.dk



Present appointments

Chief Physician in charge of clinical neurophysiology, Zealand University Hospital, since 2014

Full professor, Institute for Clinical Medicine, University of Copenhagen, since 2016

Associate professor, DIS, Danish Institute for Study Abroad, since 2003

External examiner, Danish medical schools and a number of other graduate schools, since 2002

Medical consultant DGM for the national board of health, since 2013

Other professional activities:

Numerous popular presentations on brain issues in national TV, radio, newspapers and magazines.

Patents:

Brain-computer interface spelling system and method for evaluation of brain signal quality

Multimodal in-the-wild platform is on its way in our clinic. The great advantage of this platform is that it allows for simultaneous registration from a range of sensors collecting both the clinical end the electroencephalographic data characterizing epileptic seizures.

These platforms allow for better monitoring of episodic events both with the purpose of optimizing prophylactic treatment of sleep disorders, epilepsy and diabetes and to build alarm systems. The data collected will also be used to perform prediction of episodes based on EEG and ECG.

It is hypothesized that the empowerment associated with use of these devices is relevant not only in various types of patients but also in normals who want to control when to stay alert, have a good sleep and may be even when they perform better at certain tasks like learning and memory.

Stereoencephalography (SEEG) technique, results and recommendations

Marc Guénot

Department of Neurosurgery, Hospital for Neurology and Neurosurgery Pierre Wertheimer, Hospices Civils de Lyon, Lyon, France; Université Claude Bernard, University of Lyon, Lyon, France; Neuroscience Research Center of Lyon, INSERM U1028, CNRS 5292, Lyon, France.

Marc Guénot, MD, PhD

Professor

marc.guenot@chu-lyon.fr



Le Pr Marc Guénot, né en 1966, est neurochirurgien dans le service de neurochirurgie et stéréotaxie fonctionnelles de l'hôpital neurologique P. Wertheimer à Lyon, et professeur de neurochirurgie à l'Université Claude Bernard Lyon I.

Il est particulièrement impliqué, tant sur le plan clinique que scientifique, dans la pratique et le développement de la chirurgie de l'épilepsie, ainsi que dans les études multicentriques relatives à la psychochirurgie.

Surgery in the DREZ (dorsal root entry zone) - From neurophysiological concepts to clinical practice

Marc P. Sindou

Department of Neurosurgery, Hopital Neurologique Pierre Wertheimer, University of Lyon, France

Marc P. Sindou, MD, PhD

Professor

marc.sindou@chu-lyon.fr



Professor Emeritus University Lyon1 ; Hopital Neurologique Lyon ,France

Centre Hospitalier Universitaire de Saint-Étienne ; Hopital Nord · Neurochirurgie, France · Saint-Étienne

Intraoperative Monitorig for Spinal Cord Surgery

Andrei Brinzeu

Neurosurgical Department, Hospital Pierre Wertheimer, University of Lyon.

University of Medicine and Pharmacy "Victor Babes," Timișoara, Romania.

Andrei Brînzeu, MD, MSc

andrei.brinzeu@chu-lyon.fr.



November 2009 - Hopital Neurologique de Lyon, Neurosurgeon: Pain Surgery, Deep Brian Stimulation, Surgery for Spasticity

2013 – 2015 Master's Degree, Neuroscience, Neuroscience Research, Université Claude Bernard Lyon 1, France

2000 – 2006 -Doctor of Medicine (M.D.), General Medicine, MD, Universitatea de Medicină și Farmacie „Victor Babeș” din Timișoara

Chronic Inflammatory Demyelinating Polyneuropathy (CIDP) – a logical approach

Tudor Lupescu

Agrippa Ionescu Hospital, Bucharest

RoNeuro Institute for Neurological Research and Diagnosis

Every now and then, in our neurophysiological practice we find cases with modified nerve conduction studies. Since CIDP is a treatable disease, it is sometimes a matter of “wishful thinking” to label our patients with this diagnosis. But (1) you must be sure that the values of the nerve conduction velocities are within the ranges of demyelinating changes, also taking into account the CMAP amplitudes; (2) the distribution of these changes should be compatible with the diagnosis of CIDP ; (3) you must not consider only the electroneurography changes and overlook the clinical features that can be very relevant; (4) not always demyelinating changes in nerve conduction velocities equals CIDP.

Tudor Dimitrie Lupescu
MD, Ph.D.

ltudor64@yahoo.com



Tudor Lupescu obtained his medical degree from “Carol Davila” University of Medicine in Bucharest, in 1989. After 3 years of training at Colentina Clinical Hospital he became Specialist in Neurology in 1994. Since 2006 he is running the Neurology Department at Agrippa Ionescu Hospital in Bucharest. 1998, he qualified as Consultant Neurologist. Since his early years of training in Neurology, Tudor Lupescu has shown a special interest in Clinical Neurophysiology. In 2000 he earned a Competence in Clinical Neurophysiology (EEG, EMG, and Evoked Potentials). 1997 he was the first to use Transcranial Magnetic Stimulation in Romania. This was also the subject of his PhD thesis presented in 2005. Since 2008, Tudor Lupescu is President of ASNER – Romanian Society of Electrodiagnostic Neurophysiology. He is also founding member and vicepresident of the Romanian Society of Diabetic Neuropathy.

Dr Tudor Lupescu is associate member of the American Academy of Neurology, and associate member of the American Association of Neuromuscular and Electrodiagnostic Medicine. Between 2008 and 2014 he was also member of the Neurophysiology Subcommittee of ENS, and since 2015, he is member of the Neurophysiology Subcommittee of the European Academy of Neurology.

Electro-clinical patterns and new classification in epilepsies related with focal cortical dysplasia

Ioana Mindruta 1,2,

Andrei Barborica 3,6, Mihai Malaia1,2, Irina Popa1,2
Cristian Donos3,4, Jean Ciurea 5

1Neurology Department, University Emergency Hospital, Bucharest, Romania

2Neurology Department, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

3Physics Department, University of Bucharest, Bucharest, Romania

4Neurosurgery Department University of Texas, Health Science Centre at Houston, TX

5Neurosurgery Department, Bagdasar-Arseni Emergency Hospital, Bucharest, Romania

6FHC Inc, Bowdoin ME, USA

Focal cortical dysplasias (FCD) are one of the leading etiologies for surgically remediable drug resistant epilepsies. Pathologic correlates show abnormal lamination and defects of neuronal migration and differentiation.

Intracranial recordings of electrical activity during presurgical evaluation display specific patterns mainly associated with FCD type IIb. These patterns are also highly recognizable on scalp EEG recordings as well during long term videoEEG monitoring.

The new classification distinguish 3 types of FCD's and several subtypes in each category. Early recognition of electro-clinical patterns of each category will impact disease outcome and choice of therapy.

The presentation will show relevant cases and discuss the electroencephalographic activity on surface EEG based on patterns recorded during invasive exploration for presurgical work up. The syndrome associated with FCD type IIb will be the main focus of the presentation.

Ioana Mindruta

Lecturer, MD, PhD

ioanamindruta@me.com



48-year old, neurologist, with competence in electrophysiology and special interest in epileptology, mainly invasive presurgical exploration for epilepsy surgery, neurostimulation and brain connectivity. PhD thesis on "Sleep studies in epileptic syndromes" in 2006.

Current position at the University Emergency Hospital in Bucharest in the Epilepsy and Sleep Monitoring Unit and also hospital coordinator of the National Programs for Pharmacoresistant Epilepsy and Rare Disorders.

Academic affiliation - lecturer in neurology at the University of Medicine and Pharmacy "Carol Davila" of Bucharest.

Vicepresident of Romanian Society for Electrodiagnostic Neurophysiology (ASNER) since 2009.

Do we need nerve excitability testing by threshold-tracking?

Mihai Moldovan (1,2)

- 1) *Copenhagen University DK;*
- 2) *Carol Davila University, Bucharest, RO*

Conventional nerve conduction studies provide information about the number of conducting axons as well as their conduction velocity along the investigated segment, a surrogate marker of myelination. In contrast, nerve excitability testing by “threshold-tracking” assess ion channel function and resting membrane potential at the site of stimulation providing an unique insight into the disease mechanisms.

From the patients' perspective, excitability testing is a simple continuation of conventional studies. The test is commonly performed on the median nerve motor and sensory axons stimulated at wrist. A test takes about 15 minutes and consists of a sequence of measures controlled automatically by a computer: 1) charge-duration, threshold electrotonus, current-threshold and recovery cycle. Results are given as a set of numeric excitability indices derived from the measures. Deviations from control values is interpreted based on a increasing number of literature reports in different pathologies. A mathematical model is available to aid the interpretation.

In the recent years, there is a growing interest for performing nerve excitability studies. This presentation advances a personal view on the current utility and future of nerve excitability testing both as a diagnostic tool and as a clinical research tool.

Mihai Moldovan

Assoc. Prof., MD, Ph.D.

moldovan@sund.ku.dk



Mihai Moldovan obtained his medical degree from “Carol Davila” University Bucharest in 1999 and PhD degree in neurophysiology from Copenhagen University in 2004 where he continues his academic career.

- 2016, ‘P.K.Thomas’ prize of the European Academy of Neurology.
- Since 2014, elected full member in the European Dana Alliance for the Brain (EDAB).
- Since 2013, serving on general council of Federation of European Neuroscience Societies (FENS) and International Brain Research Organization (IBRO).
- Since 2012, President of the National Neuroscience Society of Romania (SNN), a FENS member.
- Since 2012, editorial board member for Clinical Neurophysiology, the official scientific journal of the International Federation of Clinical Neurophysiology (IFCN).
- Since 2009, Scientific director of the Romanian society for electrodiagnostic neurophysiology (ASNER), an IFCN member.
- Since 2009, Invited professor and research director associated to the Department of Physiology and Fundamental Neurosciences, “Carol Davila” University of Medicine and Pharmacy, Bucharest Romania;

Challenging situations during spinal intraoperative neuromonitoring-a case report

Ionela Codita

Alexandru Thiery, Mihai Sabin Magurean, Anca Visan Raluca Gurgu

Neurology Department of Elias University Emergency Hospital, Bucharest

Within the past 2 decades, the management of spinal deformities has changed and the neurological post-operative complications have been associated with increased complexity, large corrections, staged procedures and significant blood loss.

Intraoperative neurophysiologic monitoring was developed in an effort to reduce the risks to the sensitive neural elements during spine surgery.

Neuromonitoring modalities include: Somatosensory Evoked Potentials (SSEPs), transcranial evoked motor potentials, free-running EMG, triggered EMG, EEG.

One controversial aspect of neuromonitoring involves the thresholds required to prompt intraoperative actions by the surgeon. Some guidelines do exist for specific neuromonitoring methods.

In order to appropriately respond to neuromonitoring alerts, it is important to understand the etiology of potential neurological deficits.

We present the case of a 17 years old female, with severe neuromuscular scoliosis who was operated for this condition using intraoperative neuromonitoring. During surgery, we recorded MEPs and unilateral SSEPs changes without apparent explanations. The possible sources of these abnormalities will be discussed. At awakening the patient reported right hemihypoesthesia. The brain MRI offers a reason for the electrophysiological abnormalities observed during the surgical intervention.

Ionela Codita

MD

codion2001@yahoo.com



Ionela Codita is currently working as a Senior Neurologist in the Neurology Department of Elias University Emergency Hospital in Bucharest.

She earned a Competence in Clinical Neurophysiology in 2005. During her practice, dr. Codita attended many courses and teaching programs in the field of Clinical Neurophysiology such as: scholarship in Neuro-physiopathology field at Policlinical Institute of San Donato Milanese, Italy (2002-2004), “Training Course in EMG and Neurography”-Uppsala, Sweden (2009), International SFEMG and QEMG Course–Kobe, Japan (2010), VIREPA distance learning courses on “EEG in the diagnosis and management of epilepsy – Basic Course 6th edition” (September 2011- March 2012) and “EEG SCORE course-1st edition”(November 2012-March 2013), the international educational course “Dianalund Summer School on EEG and Epilepsy” (July 2012) and educational course: ”Brainstem and Peripheral Nervous System-Neurophysiological Monitoring”- Groningen, Netherlands (Nov 2016).

She manifests interest in Peripheral Neuropathies, Motor Neuron Diseases, Myopathies and Intraoperative Neuromonitoring. Dr. Ionela Codita is a member of the Romanian Society of Neurology and she is the Secretary of ASNER-Romanian Society for Electrodiagnostic Neurophysiology (ASNER), since 2013.

Clumsy hand -case presentation; Introduction-an episode of -medical historiography

Mircea Moldovan

I Codita, Horia Niculae, D Baltateanu, E Georgescu

Neurology Department of Elias University Emergency Hospital, Bucharest

Throughout history, the study of the hand fascinated the interest of multiple artists, philosophers, writers, doctors, and was invoked in different situations of gratitude. We therefore take this opportunity to present a rare hand dysfunction resulting from a cervical spondylitis.

Among situations involving hand in pathology, the "clumsy hand" ("mana neindemanatica") can result from several different pathologies. I was described in association with dysarthria -through an accident at the level of the brainstem as well as in cases of cervical medulla injury without dysarthria. It is a rare syndrome characterized by uncertainty in current activity requiring coordination with that hand.

I present a case of impairment of hand functionality in the context of a spondylitis with spinal cord compression at cervical level C3-C4 in patient of 60 years operated for a cervical canal stenosis.

The patient presented clumsy hand movements with ataxic clinical features. The muscle strength was normal. The proprioceptive and cutaneous sensory afferents were partial involved, tactile discrimination stimuli being spared. The patient was operated of cervical spinal stenosis although the relationship with the hand dysfunction was unclear.

Motor and sensitive neurography was normal. Sensory evoked potential elicited by stimulating the median found an increased N11-N13 duration (the potential originating in the lower cervical cord) ,right more than the left by about 1 ms. This indicated a possible spinal lesion along the cuneate fasciculus. The presence of some movement in his left hand fingers wrist associated with the right hand movement - " mirror movements" suggested an impairment of medullary interneuronal innervation at the level of cervical C3-C4.

Mircea Moldovan

MD, PhD

mirceaemg@gmail.com



Dr. Mircea Moldovan, graduate of the "Carol Davila" University Bucharest, Doctor of Medical Sciences, MD is a neurologist at the Hospital "Elias" Bucharest since 1968. Throughout his career, he had a continuous interest for clinical neurophysiology. In the 80s, his main interest was the EEG and evoked potentials under the guidance of Prof Dr V Voiculescu. In the 90s, his interest expanded to the peripheral conduction studies and EMG. During his pioneering work in Romanian clinical neurophysiology, Mircea Moldovan advocated the diagnostic importance of clinical neurophysiology for neurological practice through talks at national scientific meetings and scientific publications. Most importantly, however, through his wealth of practical experience and didactic spirit, he helped initiate in clinical neurophysiology generations of young neurologists. During the last decade, with the transformation of "Elias" hospital neurology into a university department and re-formalizing his skills in EMG (2003) and EEG (2004), Dr. Mircea Moldovan developed his preoccupation for clinical neurophysiology teaching. Together with Dr. Ionela Codita he carries out practical demonstrations of post-graduate courses organized by Professor Dr. Panca EMG. In addition, Dr. Mircea Moldovan contributed to re-launch of the clinical neurophysiology society in Romania as founding member of ASNER 2009.

Neurophysiological intraoperative monitoring in cerebral awake surgery

Filip Dan, Matei Claudiu, Nistor Sofia, Dancu Iulia, Calvun Elena

Spitalul European Polissano Sibiu

Introduction: The awake surgery and cerebral mapping are performed in patients with low-grade brain tumors that infiltrated functional brain areas; in these cases, the wider the resection is, the longer the survival.

Objectives: Tumor resection should be quasitotal but with the preservation of the integrity of motor or language-specific areas. This is done by cortical mapping and then subcortical monitoring.

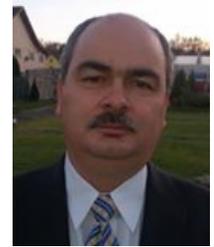
Methods: Cortical and subcortical mapping was performed with the bipolar stimulator starting at 1.5 mA and not exceeding 6 mA. The generator emits rectangular biphasic pulses with a duration of 1.25 ms in 4-second trains at 60 Hz (Penfield technique). Subcortical motor monitoring was performed with the monopolar stimulator attached to the surgical suction tube with cathodic stimulation, 5-pulse train of stimuli with a duration of 0.5 ms and frequency of 250 Hz, repeated every second (1 Hz).

In order to achieve a real-time appreciation of cognitive and language functions during the tumor resection that infiltrates the eloquent brain areas, a complex neuropsychological test was used in combination with standard cortical and subcortical mapping. During the psychological testing concurrent with cortical mapping were normal, damaged responses, reversible dysfunctions in different requirements that tested cognitive skills.

Results: We performed neurophysiological intraoperative neuromonitoring in 3 patients with low-grade brain tumors and awake surgery. The asleep-awake-asleep anesthesia protocol was used. The first patient had a left frontal tumor with focal motor faciobrahial seizures. Cortical mapping with phase reversal technique and direct bipolar stimulation for motor language area, continuous monitoring of cortical and subcortical MEPs were performed.

Filip Dan, MD

fildaro@yahoo.com



Graduate Faculty of Medicine and Pharmacy Tg.Mureş -1995.

Certificate of complementary studies in electromyography -dec. 2013

Educational Courses ISIN (International Society of Intraoperative Neurophysiology) – „Spine” – Istanbul 2014; „The Essentials” – Verona 2015; „Brainstem” – Groningen 2016.

Member of the European Academy of Neurology EAN

Member of ASNER (Association of Electrodiagnostic Neurophysiology Society in Romania)

Member of ISIN (International Society of Intraoperative Neurophysiology)

In the second case with a left parietal tumor we used cortical sensory mapping and phase reversal, continuous subcortical monitoring for the area of the receptive language and for the subcortical interconnection paths of the areas of the language (arcuate fasciculus, superior longitudinal fasciculus) that were at risk. The third case with right front tumor and moderate left hemiparesis benefited from cortical motor mapping and cortical and subcortical MEPs monitoring for preserving the corticospinal tract.

Patients did not show newly developed motor deficits or postoperative speech disorders.

Conclusion: The glioma resections in awake surgery with mapping technique are associated with fewer neurological deficits under the conditions of a wider resection. Unlike motor functions, speech and language are variably distributed and widely represented cortical, emphasizing the need for mapping. Both in low-grade gliomas and in higher-grade gliomas, it was observed that extended resection increases life expectancy. Cortical mapping and subcortical monitoring is therefore recommended in any glioma resection located near eloquent areas as standard.

Telemedicine in Epilepsy - 1 year in Romania

Florea Bogdan

Centrul de Epilepsie si Monitorizare EEG Cluj-Napoca, Cluj-Napoca, Romania

There are differences between the approaches of the patients with epilepsy among various areas in Romania. The EEG recording procedures, treatment efficacy monitoring, change or interrupt decision differ according to the local neurologist. University centers experience contrasts with the modest served geographical areas considering the standardization of these decisions.

Creating in 2016 in Romania of a network with 6 epilepsy centers linked through a server, allows the access of the patients at a sooner and correct diagnosis of the form of epilepsy, closer to their homes. In this way could be avoided the pressure on the university centers, which could offer a second or a third opinion, recruiting only the difficult or treatment refractory cases.

Telemedicine does not replace the medical way of thinking. Telemedicine optimizes the time of the medical doctors and patients, standardizing the work procedures.

Bogdan FLOREA MD

bogdan_florea@yahoo.com



Dr. Bogdan FLOREA: UMF “Iuliu Hatieganu” Cluj-Napoca, Imogen Research Center

Bogdan Florea graduated the “Iuliu Hatieganu” University of Medicine in Cluj-Napoca in 1997 and became senior consulting neurologist in 2012. Clinical neurophysiology fellowships in Italy – Modena and Bologna, USA – Mayo Clinic, Sweden – Uppsala doubled by the daily activity in the computerized EEG department of the Neurological Clinic and many teaching courses in this area recommend him as a passionate in neurophysiology. His domains of interest are epilepsy and neurophysiology of coma.

Median nerve ultrasound as a screening tool in carpal tunnel syndrome overlapped with diabetic neuropathy

Nicu Draghici

Tudor Lupescu, Maria Balea, Dafin F. Muresanu

*INSTITUTUL IMOGEN. INSTITUTUL RONEURO,
Cluj Napoca, Romania*

Introduction

Carpal tunnel syndrome (CTS) is the most common entrapment neuropathies and represents the compression of the median nerve at the level of the wrist. Diabetic polyneuropathy (DPN) is one of the most common complications of diabetes melitus (DM) with a high prevalence between 23% - 54%. Because the DPN symptoms can mimic a CTS, its diagnosis in patients with diabetes may be recognized with difficulty and delayed. Currently, there is no gold standard in the diagnosis of CTS in diabetic patients.

Methods

We included 28 consecutive patients with DPN divided into two groups: Cases (with CTS) and Controls (without CTS). The clinical suspicion of CTS and DPN was established by standard electroneurography techniques. An experienced examiner was blinded for the EMG diagnosis and performed all the median nerve ultrasounds. The cross sectional area (CSA) was calculated by tracing two times the nerve at different sites: (a) at the wrist above the flexor retinaculum and (b) 6 cm proximal to this level at the mid – forearm.

Results:

This study was conducted to demonstrate if the median nerve ultrasound is useful in the diagnosis of CTS superimposed on DP. We found a significant difference between the two groups of patients using these two methods.

Conclusion

Ultrasound is complementary to electroneurographic examination and can be used with confidence in the diagnosis of CTS in the patients with overlapping diabetic polyneuropathy.

Nicu Draghici, MD

nicu.draghici@yahoo.com



Este medic specialist neurolog din octombrie 2014 și a absolvit Facultatea de Medicină și Farmacie “Iuliu Hațieganu”, Cluj Napoca, în anul 2010. În timpul rezidențiatului, și-a completat pregătirea profesională cu mai multe stagii în Franța, iar în prezent, este doctorand la Facultatea de Medicină și Farmacie “Iuliu Hațieganu”. Tema de cercetare aleasă este “Eficiența și inocuitatea stimulării farmacologice a neuroplasticității în neuropatie diabetică”. În cadrul aceleiași instituții este membru în Consiliul pentru Studiile Universitare de Doctorat (CSUD).

Este medic specialist neurolog la Institutul RoNeuro și asistent cercetător în cadrul Institutului IMOGEN, proiect derulat de Spitalul Județean de Urgență Cluj Napoca. De asemenea, este implicat, în calitate de investigator, în desfășurarea studiilor clinice Extend și ProCid.

Principalele arii de interes sunt studiul și diagnosticul neuropatiilor periferice.

Testing epileptic seizures during video-electroencephalography for better anatomic-electro-clinical correlations

Ioana Mindruta, Mihai Dragos Malii, Andrei Barborica, Cristian Donos, Andrei Daneasa, Anca Arbune, Jean Ciurea

Spitalul Universitar de Urgenta Bucuresti, Bucuresti, Romania

irina.popa10@yahoo.com

More than 30% of patients with epilepsy are drug-resistant; around 50% of these patients could undergo epilepsy surgery in an attempt to control seizures. In these cases, a detailed work-up including seizure semiology analysis should be done in order to localize the epileptogenic zone.

Seizure semiology is an expression of activation and disinhibition of cerebral areas and thus provides information about which cerebral areas are “involved” during the ictal discharge. Objective data on seizure semiology are provided by video-electroencephalography (VEEG). This is a neuro-electrophysiological tool that, using surface or intracranial electrodes enables us to record seizures while monitoring ictal semiology and electrical signal at the same time. Hence, we can perform anatomic-electro-clinical correlations and delineate the amount of cortex that has to be resected so that the patient could have a chance to be seizure-free.

Our workshop aims to explain the importance of testing seizures by interacting with the patient during the ictal and post-ictal period. This allows us to determine possible clinical manifestations that otherwise would remain unknown. For example, during a left temporal lobe seizure it is necessary to evaluate language abilities, to identify any deficit, determine what type of impairment does the patient present and at which time of the seizure it appears. Furthermore, together with ictal scalp and/or intracranial EEG signals we can define the epileptic network and tailor resection without generating a deficit.

Neurophysiology in narcolepsy patients

Floriana Boghez



Clinica Academica, Bucuresti, Romania

floriana_boghez@yahoo.com

Narcolepsy is a chronic neurologic disorder defined by a tetrad of symptoms: excessive daytime sleepiness, cataplexy, hypnagogic hallucinations and sleep paralysis. It affects approximately 0.05% of the general population and it is associated with substantial morbidity and an impaired quality of life. The full clinical picture may develop years after the assessment of somnolence and, in the mean time, until cataplexy (which is almost pathognomonic) comes in sight, the neurophysiologic testing could help the diagnosing and analyzing the most convenient treatment for these patients. Sleep studies are an essential part of the evaluation of patients with possible narcolepsy. The combination of an overnight polysomnography (PSG) followed by a multiple sleep latency test (MSLT) can provide strongly suggestive evidence of narcolepsy while excluding other sleep disorders. A sleep latency below 8 min and at least two sleep-onset REM periods (diurnal or nocturnal) almost certifies narcolepsy. A sleep and wake EEG recording differentiates between narcolepsy and epilepsy, a frequent clinical problem especially in children/adolescents where the cataplexy may be partial/segmentary, often confused with seizure. Besides that, the night EEG remains the main tool to continue to study the microstructure of sleep in these patients with almost permanent disrupted night-time sleep and sleep comorbidities (REM sleep-behavior disorder, periodic limb movements, sleep apnea, insomnia, nightmares).

Importanta polisomnografiei in evaluarea pacientilor cu alfa-synucleinopatii

Amalia Ene,

Oana Obrisca 1), Mihai D. Maliia 1), Irina Popa 1),
Johanna Berthier 2), Ioana Mandruta 1, 2)

¹⁾ Clinica de Neurologie, Spitalul Universitar de Urgenta Bucuresti, Romania ; ²⁾ Universitatea de Medicina si Farmacie "Carol Davila", Bucuresti, Romania

amalia.ene03@yahoo.com



Introducere. Tulburarile de comportament in timpul somnului REM (RBD – “REM sleep behaviour disorder”) reprezinta parasomnii caracterizate de absenta atoniei in timpul REM, asociata cu miscari complexe. RBD se asociaza in mare masura cu alfa-synucleinopatii, fiind foarte frecvent intalnit in atrofia multisistem si boala Parkinson (BP), atat in perioada prodromala, cat si pe parcursul evolutiei bolii.

Material si metode. Studiul a inclus 17 pacienti cu boli neurodegenerative, 10 cu boala Parkinson (PD) si 7 cu atrofia multisistem (AMS), care au efectuat polisomnografie in ultimele 18 luni in clinica noastra. Au fost analizate date clinice privind timpul de la debutul bolii, statusul cognitiv (MMSE, testul ceasului), dispozitia depresiva (scorul BDI), comorbiditati si rezultatele polisomnografiei (timpul total de somn (TST), cuantificarea stadiilor de somn, prezenta REM, a RBD, a apneei si a miscarilor periodice ale membrilor - PLM).

Rezultate1. Majoritatea pacientilor din lotul studiat au fost barbati (70.58%), iar comorbiditatile cel mai frecvent intalnite au fost depresia (47%), dislipidemia (47%), ateromatoza carotidiana (41%), hipertensiunea arteriala (29%) si hipotensiunea ortostatica (23%). Din punct de vedere clinic, grupurile cu BP si cu AMS au fost similare, cu exceptia timpului de la debut, care a fost semnificativ statistic mai mare la cei cu BP (6.14 ± 5.46 vs 1.93 ± 0.838 , $p=0.042$).

In urma analizei univariate a datelor de la polisomnografie, RBD a fost intalnit cu o frecventa de 58.82%, PLM 47.05%, apneea in somn 70.85% (predomina apnea obstructive). Prezenta RBD s-a asociat cu scor mai mic la testul ceasului (8.1 ± 2.1 vs 10 , $p=0.04$), cu durata mai lunga a TST (281 ± 49.8 min vs 81 ± 36.2 min, $p=0.028$) si cu eficienta mai buna a somnului (66.8 ± 14.1 vs 35.6 ± 17.8 , $p=0.012$).

Researcher and Senior Neurologist in the Neurology Department of the University Emergency Hospital in Bucharest with training in Neurophysiology, and participation at numerous courses of EMG. She is also the Coordinator of the National Program for Deep Brain Stimulation in Parkinson's Disease and she was and is involved in several clinical trials in Parkinson's Disease and peripheral neuropathies. She has a vast experience in movement disorders and peripheral neuropathies, proven by many scientific papers and presentations.

Rezultate2 Nu au fost diferente semnificative statistice intre cele 2 grupuri de pacienti in ceea ce priveste frecventa tulburarilor de somn. Datorita coexistentei frecvente a RBD cu apneea in somn, doar 8 pacienti (47.05%) au primit tratament cu clonazepam.

Concluzii. Asocierea RBD cu scor mai mic la testul ceasului este sugestiva pentru deteriorarea cognitiva mai importanta a pacientilor cu RBD fara de cei fara tulburare de somn, fapt deja confirmat la pacientii cu BP in studii anterioare. Intrucat lotul de pacienti a fost mic, iar majoritatea pacientilor inclusi nu au avut o durata lunga de evolutie a bolii, nu s-au evidentiat asocieri intre RBD si tulburari vegetative.

Parallel direct electrical stimulation and somatosensory evoked potentials for primary sensory cortex mapping: a case study

Andrei Daneasa

I. Popa, M.D. Mălîia, A. Arbune, A.M. Cobzaru, I Mîndruță

Spitalul Universitar de Urgenta Bucuresti, Bucuresti, Romania

daneasa.andrei@gmail.com

Introduction: Patients with intractable epilepsy, who are candidates for resective surgery, undergo an extensive presurgical workup. During stereoelectroencephalographic (SEEG) monitoring, direct electrical stimulation (DES) is used to map the eloquent cortex. Occasionally, supplementary methods like intracranially recorded evoked potentials can be used to complement DES exploration. In the following case somatosensory evoked potentials (SSEP) were used in order to better map the primary somatosensory cortex (S1).

Case presentation: We present the case of a 39-year-old male with intractable epilepsy, who underwent presurgical workup in our center. Seizure onset was at 13 years of age. Semiology consisted of a sensation described as a shiver in the left leg, followed by clonic movements at this level and eventually loss of contact. Magnetic resonance imaging did not reveal an epileptogenic lesion. The patient was explored with intracranial electrodes, which, among others, sampled the medial aspect of the postcentral gyrus and the structures surrounding it – the cingulate cortex, primary motor cortex, parietal cortex, premotor and supplementary motor area. During DES of the S1, accompanying the sensory phenomena reported by the patient were motor manifestations, even at low current intensities. Therefore it was impossible to accurately delineate the functional cortex that needed to be spared during resection. Consequently we used SSEPs, obtained by stimulating the right fibular and tibialis nerves and recording the evoked potentials intracranially. In this manner we were able to identify the genuine somatosensory cortex and to perform radiofrequency thermocoagulation without creating a neurological deficit.

Conclusion: Somatosensory evoked potentials can be used during stereoelectroencephalographic monitoring for S1 mapping, in addition to direct electrical stimulation. This method is most useful when DES yields ambiguous results.

GBS or not?-A case of acute polyradiculoneuritis with unpredictable evolution and multiple comorbidities

Marian Cristian Feticiu

Dr Simina Dumitrache-Anton, medic primar ATI, Dr. Makk Raluca -medic specialist neurolog

Sp. Militar de Urgenta" Regina Maria" -Brasov, Brasov, Romania

marianfeticiu@yahoo.com

Acute polyradiculoneuritis is a disease with clinical and paraclinical presentation well defined but with a variable and inaccurate described etiologic context. We would like to present the case of a 52 years old patient whose presentation, clinical and paraclinical evolution and response to therapy are typical for acute polyradiculoneuritis Guillain-Barre but the context of the other illnesses and his long term evolution have done major difficulties in solving the case. Those difficulties were increased by patient trend to require medical aid only in acute disease and to neglect his chronic illnesses. If after the acute phase evolution has been favorable with very good motor recovery, remaining kept under control diabetes mellitus and elucidated the cause of a persistent leukocytosis in the absence of a feverish syndrome, the long term evolution was unfavorable with the emergence of a severe migratory lumbar pain culminating with the installation of an acute paraplegia 3 months late from the initial episode. The cause of the second episode of palsy has been an vertebral abscess with *Staphylococcus aureus* sensitive to antibiotic, germ identified in uroculture performed at initial admission. The source of infection was going to be revealing much later after a long period and difficult recovery. Infection with *Staphylococcus aureus* could be the trigger factor for the initial acute polyradiculoneuritis at the initial presentation.

Motor neuron disease spectrum-a case study



Izabela Popa

Cabinet de Neurologie Dr Izabela Popa, Timisoara, Romania

izabela_popa@yahoo.com

Although motor neuron disease (MND) is usually a straightforward diagnosis on clinical basis, every clinician has concern about missing a potential disorder with MND-like presentation. This often implies many investigations thus prolonging time to diagnose the condition.

For patients with focal early presentation the diagnostic algorithm is changing and the differential diagnostics are taken into consideration first.

EEG pattern of drug resistant epilepsy

Carcalici Ioan-Radu ¹,

Irina Popa², Maliia Dragos Mihai², Mindruță Ioana

¹Department of Neurology, Emergency Hospital, Sibiu

² Departament of Neurology, University Emergency Hospital Bucharest

radu_radu29@yahoo.com

The main goal of antiepileptic treatment is complete seizures remission, with no side effects of anticonvulsants. However, in 30-35% of cases, this outcome is not achieved because seizures are resistant to anticonvulsant treatment.

Identifying epileptic patients at higher risk of drug resistance, as soon as possible, is particularly important in epilepsy management. Various predictors of drug resistant epilepsy have been identified, but accurate prediction is still a problem, and EEG patterns play a limited role in this process. Moreover, in the population with established drug resistance epilepsy, no typical EEG patterns are clearly related to pharmaco-resistance in adults.

Prolonged video-EEG recording is the gold standard for exploring patients in this stage, and should be indicated as early as possible, usually after the failure of first monotherapy. Interictal epileptiform discharges with a systematic lateralization and well confined to a lobar distribution, will be the best indicator that the patients with drug resistant epilepsy could benefit from a surgical perspective.

Towards a neurophysiological EEG reactivity monitor (NERMO) to track coma severity

Cosmin-Andrei Șerban^{1,2,3},

Costi Pistol^{1,2}, Andrei Barborică^{1,2,3}, Adina-Maria Roceanu⁴, Ioana Raluca Mîndruță⁴, Jan Ciurea⁵, Ana-Maria Zăgrea⁶, Leon Zăgrea⁶ and Mihai Moldovan^{2,6,7}

1 Physics Department, University of Bucharest, Romania

2 Termobit Prod SRL, Bucharest, Romania

3 FHC Inc, Bowdoin, ME, USA

4 Neurology Department, University Emergency Hospital, Bucharest, Romania

5 Department of Neurosurgery, Bagdasar-Arseni Emergency Hospital, Bucharest, Romania.

6 Division of Physiology and Neuroscience, "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania;

7 Department of Neuroscience, Panum, University of Copenhagen, Copenhagen, Denmark

cosmin.serban@termobit.ro

There is a growing clinical need to improve the monitoring of the comatose brain. EEG-based methods are typically aimed at quantifying the pathologic slowing of continuous EEG. Nevertheless, during deep comatose states, the EEG becomes discontinuous - referred to as burst-suppression (BS). We developed a novel technology that can be used to quantify both the continuous EEG and BS alike. In brief, we classify the multi-channel EEG into alternating states with similar topographic frequency distribution. We then identify a default EEG class, that is transiently reduced during a 1-minute stimulation epoch as compared to 1-minute pre-stimulation and post-stimulation epochs. The relative change in default EEG class fraction is referred to as Default EEG Reactivity (DER) – patent pending. Here we present experimental and clinical studies under different stimulation paradigms indicating that DER impairment reflects coma severity. We therefore feel encouraged to develop a hardware neurophysiological EEG reactivity monitor (NERMO) to facilitate long term DER tracking.

Biophysical aspects in EEG signal analysis: polarity, montages, sampling, amplitude and frequency.

Mihai Dragos MALIIA,

Irina Popa, Andrei Daneasa, Anca Arbune, Cristi Donos, Andrei Barborica, Ioana Mindruta

Neurology Department, University Emergency Hospital, Bucharest, Romania

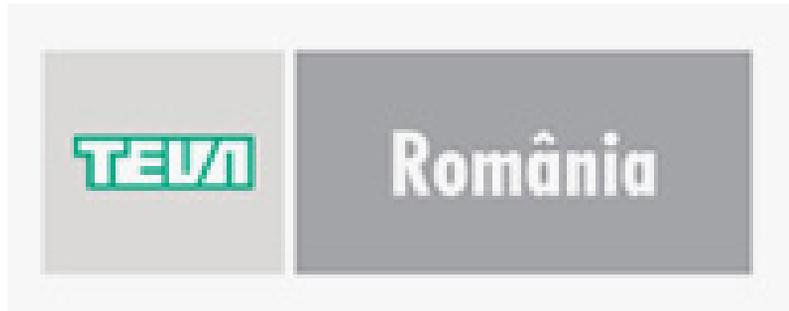
mihaidragosh@yahoo.com

The EEG trace is a graphical depiction of various electromagnetical processes existing at the scalp level, only some reflecting true cerebral activity. To properly obtain a neurophysiological diagnosis one has to have a basic understanding of the signals' properties and of the recording methodology.

The polarity and different montages are especially relevant for inferring the location of the electrical source and thus classifying the epilepsy syndromes. A neurophysiologist has to have the versatility of changing and adapting the parameters of various classical EEG-montages in front of an EEG anomaly in order to maximize the amount of information obtained. Based on these it is encouraged to create personalized montages tailored on the various clinical scenarios encountered in the clinical practice.

The sampling rate and the proper filtering are essential in recording and analyzing the physiological and pathological brain waves. Here we will detail the Nyquist-Shannon theorem and the aliasing phenomenon that are so important in recording the frequencies of interest. The last part of the presentation will be focused around the properties of the rhythms recorded in human electroencephalography and their diagnostic yield, with an emphasis of recent developments in the field.

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