



THE EUROPEAN ASSOCIATION
OF NEUROSURGICAL SOCIETIES

Bridging Neurosciences and Neurosurgery:

New Frontiers in Intraoperative Neurophysiology

Programme

2-4 February 2023 | Verona, Italy

Symposium Host: Francesco Sala



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OF NEUROSURGICAL SOCIETIES



Bridging Neurosciences and Neurosurgery: New Frontiers in Intraoperative Neurophysiology

Under the auspices of the International Society
of Intraoperative Neurophysiology (ISIN)

Verona, Italy
2-4 February 2023

Symposium Host:
Francesco Sala

Scientific Committee:
Francesco Sala, Luigi Cattaneo and Davide Giampiccolo

Scientific Committee at large (Abstract Reviewers):
L. Bello, C. Boex, I. Fernandez-Conejero, T. Ius, A. Korn, S. Krieg, J. Prell,
D. MacDonald, N. Morota, G. Raffa, K. Seidel, J. Sarnthein, A. Szelenyi,
S. Ulkatan

Dear friends and colleagues,

on behalf of the EANS and the ISIN I'm delighted to welcome all of you to the City of Love for the third Edition of this unique Symposium on Intraoperative Neurophysiology.

The concept of neurophysiology-assisted Neurosurgery is well established, and intraoperative neuromonitoring is nowadays of routine use in many neurosurgical centers inside and outside Europe.

Since the last Symposium, in 2017, novel techniques and new frontiers have emerged, particularly with regards to intraoperative mapping of subcortical connectivity, both in the awake and asleep setting, as well as monitoring of brainstem reflexes, spinal cord mapping, and intraoperative neurophysiology of the cerebellum.

In these three days an outstanding faculty of neuroscientists, neurophysiologists and neurosurgeons will take us through a fascinating journey, exploring the state-of-the-art and future perspectives in Intraoperative Neurophysiology.

Morning breakfast seminars will then offer an opportunity for interactive discussion with the experts in various fields of Neurosurgery and Neuromonitoring.

Last but not least, for the first time we opened to abstract submission, which went far behind our imagination with over 85 submitted works.

Keeping to the tradition of our previous editions, the Special Session on Neurosciences and Jazz will this year take place in one of the most astonishing villas in Valpolicella. This will be a unique opportunity to meet old friends and new colleagues in a joyful atmosphere.

During your stay in Verona we hope you'll spare some time to visit this World Heritage site, with its iconic roman amphitheater and the romantic old city.

Welcome to Verona

Francesco Sala

Symposium Host

FACULTY LIST

- Kristian Aquilina** (UK)
Reiko Ashida (UK)
Federica Basaldella (Italy)
Lorenzo Bello (Italy)
Colette Boex (Switzerland)
Luigi Cattaneo (Italy)
Marco Cenzato (Italy)
Marco Catani (Italy)
Alessandro De Benedictis (Italy)
Domenico D'Avella (Italy)
Vedran Deletis (Croatia)
Andreas Demetriades (UK)
Hughes Duffau (France)
Isabel Fernandez-Conejero (Spain)
Maurizio Fornari (Italy)
Marco Fontanella (Italy)
Andreu Gabarrós Canals (Spain)
Davide Giampiccolo (UK)
André Grotenhuis (The Netherlands)
Tamara Ius (Italy)
Nikolay Konovalov (Russia)
Sandro Krieg (Germany)
Akiva Korn (Israel)
Paola Lanteri (Italy)
Roger Lemon (UK)
David Macdonald (Italy)
Barbara Masotto (Italy)
Ricki Matsumoto (Japan)
Chiara Mazzi (Italy)
Nobuhito Morota (Japan)
Fabio Moscolo (Italy)
Alessandro Olivi (Italy)
Rocco Quatrate (Italy)
Alberto Pasqualin (Italy)
Wilco Peul (The Netherlands)
Giampietro Pinna (Italy)
Guglielmo Puglisi (Italy)
Julian Prell (Germany)
Andreas Raabe (Switzerland)
Giovanni Raffa (Italy)
Lukas Rasulic (Serbia)
Michael Sabel (Germany)
Francesco Sala (Italy)
Johannes Sarnthein (Switzerland)
Silvio Sarubbo (Italy)
Karl Schaller (Switzerland)
Jeremy Schmähmann (United States)
Kathleen Seidel (Switzerland)
Franco Servadei (Italy)
Miran Skrap (Italy)
Andrea Szelenyi (Germany)
Giulia Sprugnoli (Italy/United States)
Giovanna Squintani (Italy)
Francesco Tomasello (Italy)
Sedat Ulkatan (United States)
Josep Valls-Solè (Spain)
Elisabetta Zanoletti (Italy)
Alberto Feletti (Italy)
Riccardo Ricciuti (Italy)

SCIENTIFIC PROGRAMME

THURSDAY, FEBRUARY 2nd, 2023

08:00 - 08:30	Registration	
08:30 - 08:45	Welcome and Introduction	
	F. Sala (Symposium Host), A. Demetriades (President of the European Association of Neurosurgical Societies), S. Ulkatan (President of the International Society of Intraoperative Neurophysiology), M. Fornari (President of the Italian Neurosurgical Society), P.F. Nocini (Dean of the University of Verona)	

From Neurosciences to Neurosurgery: Functional presurgical mapping (Tractography and nTMS)

Chairs: G. Raffa, L. Cattaneo

08:45 - 09:15	Keynote Lecture 1: Updates on tractography for language and cognitive function	(M. Catani)
09:15 - 09:35	Updates and future perspectives in navigated TMS for motor mapping	(S. Krieg)
09:35 - 09:55	Updates and future perspectives in navigated TMS for language mapping	(G. Raffa)
09:55 - 10:05	Discussion	

From Neurosciences to Neurosurgery: Exploring connectivity in the brain in the awake and asleep setting

Chairs: D. MacDonald, S. Krieg

10:05 - 10:35	Keynote Lecture 2: The value of cortico-cortical evoked potentials in a neurosurgical perspective	(R. Matsumoto)
10:35 - 10:50	Cortico-cortical evoked potentials in asleep surgery: Feasibility and limitations	(D. Giampiccolo)
10:50 - 11:00	Discussion	
11:00 - 11:30	<i>Coffee break</i>	
11:30 - 11:50	Connectivity of the parietal and frontal lobe with the primary motor cortex	(L. Cattaneo)

From Neurosciences to Neurosurgery: Supratentorial Motor system

Part I Neurophysiology

Chair: V. Deletis

11:50 - 12:20	Keynote Lecture 3: Updates on the functional organization of the primary motor cortex	(R. Lemon)
12:20 - 12:30	Discussion	
12:30 - 13:30	<i>Lunch break</i>	

Part II Neurosurgery

Chairs: A. Olivi, M. Sabel

13:30 - 13:45	Surgery of brain tumors in motor and pre-motor areas: Why asleep?	(A. Raabe)
13:45 - 14:00	Surgery of brain tumors in motor and pre-motor areas: Why awake?	(H. Duffau)
14:00 - 14:15	Surgery of brain tumors in motor and pre-motor areas: Why awake and asleep?	(L. Bello)
14:15 - 14:30	Discussion	

From Neurosciences to Neurosurgery: Language, Cognition and Vision

Part I Neurophysiology

Chairs: M. Catani, L. Bello

14:30 - 14:50	The mainstreams of language: A research and surgical perspective	(S. Sarubbo)
14:50 - 15:05	Perioperative assessment of cognitive functions in the right hemisphere	(G. Puglisi)
15:05 - 15:10	Discussion	
15:10 - 15:25	Updates in Neurophysiology of vision	(C. Mazzi)
15:25 - 15:45	Updates on monitoring and mapping of visual pathways	(C. Boex)
15:45 - 15:50	Discussion	
15:50 - 16:10	Neuropsychological evaluation around the clock during awake surgery	(T. Ius)
16:10 - 16:15	Discussion	
16:15 - 16:45	<i>Coffee break</i>	

Part II Neurosurgery

Chairs: M. Fontanella, R. Matsumoto

16:45 - 17:05	Preserving cognition during surgery in the dominant and non-dominant hemisphere	(H. Duffau)
17:05 - 17:25	Surgery of insular gliomas: Advantages and limitations of neurophysiological mapping and monitoring	(M. Skrap)
17:25 - 17:45	Awake versus asleep brain mapping and monitoring in brain gliomas surgery: Advantages, limitations, and impact on clinical practice	(M. Sabel)
17:45 - 18:00	Discussion	

Neuromonitoring in Vascular Neurosurgery

Chairs: A. Gabarros, A. Pasqualin

18:00 - 18:20	Advantages and limitations of IONM in aneurysm surgery: Neurophysiological perspective	(I. Fernandez-Conejero)
18:20 - 18:40	When IONM does and does not help in aneurysm surgery: A perspective from the EANS Vascular Section	(A. Raabe)
18:40 - 18:50	Discussion	
19:00 - 20:30	<i>Welcome cocktail</i>	

FRIDAY, FEBRUARY 3rd, 2023

07:45 - 08:50	Breakfast Seminar with the experts (3 lectures 15' each and 20' discussion)	
	A) How to establish intraoperative neurophysiology at your institution	V. Deletis, A. Szelenyi, S. Ulkatan
	B) Surgery for high and low grade gliomas in motor areas	A. Olivi, G. Pinna, K. Seidel
	C) Monitoring SSEPs in brain and spinal cord surgeries: Tailored strategies	D. MacDonald, R. Quatrala, A. Korn
	D) Cortical and subcortical language and cognitive mapping in awake brain tumor surgery	S. Sarubbo, L. Bello, T. Ius
	E) Surgery for insular gliomas	M. Skrap, A. Gabarros, M. Sabel
	F) Neuromonitoring and aneurysm surgery	I. Fernandez-Conejero, A. Raabe, M. Cenzato

From Neurosciences to Neurosurgery: The Cerebellum

Chairs: A. Korn, F. Sala

09:00 - 09:20	Networking of the human cerebellum: From anatomo-functional development to neurosurgical implications	(A. De Benedictis)
09:20 - 09:40	Tractography of the cerebellum: Implications for cerebellar mutism	(C. Aquilina)
09:40 - 09:50	Discussion	
09:50 - 10:20	Coffee break	
10:20 - 10:35	Sensory-motor electrophysiological mapping of the cerebellum in humans: Challenges and perspectives	(R. Ashida)
10:35 - 10:50	Neuromonitoring of the cerebellum: a pilot study	(D. Giampiccolo)
10:50 - 11:00	Discussion	
11:00 - 11:30	Keynote lecture 4: The Cognitive Cerebellum	(J Schmahmann)
11:30 - 11:40	Discussion	

From Neurosciences to Neurosurgery: The Brainstem and Skull Base

Part I Neurophysiology

Chairs: S. Ulkatan, J. Valls-Solè

11:40 - 12:00	Updates in the Neurophysiology of the Brainstem	(J. Valls-Solè)
12:00 - 12:15	Monitoring of the trigeminal and Blink-Reflex	(V. Deletis)
12:15 - 12:30	Monitoring oculomotor nerves	(J. Sarnthein)
12:30 - 12:45	Facial MEPs: advantages and limitations	(A. Szelenyi)
12:45 - 13:05	Novel techniques to monitor brainstem reflexes and implications for neurosurgery	(S. Ulkatan)
13:05 - 13:20	New insights into tongue-related brainstem reflexes	(A. Szelenyi)
13:20 - 13:40	Discussion	
13:40 - 14:40	Lunch break	

Part II Neurosurgery

Chairs: F. Tomasello, A. Grotenhuis

14:40 - 15:00	Monitoring guided brainstem tumor surgery	(N. Morota)
15:00 - 15:20	Monitoring guided brainstem vascular surgery	(M. Cenzato)
15:20 - 15:40	When IONM does and does not help in skull base surgery: A perspective from the EANS Skull Base Section	(T. Meling)
15:40 - 16:00	Discussion	
17:00 - 22:30	Session and Gala Diner: Future perspectives in peri-operative Neurophysiology (Not part of the scientific programme)	

SATURDAY, FEBRUARY 4th, 2023

07:45 - 08:50	Breakfast Seminar with the experts (3 lectures 15' each and 20' discussion)
	A) IONM assisted extramedullary and intramedullary spinal cord tumor surgery (F. Servadei, D. MacDonald, G. Pinna)
	B) IONM assisted skull base and cerebello-pontine angle surgery (J. Prell, N. D'Avella, E. Zanoletti)
	C) IONM assisted brainstem surgery (B. Masotto, S. Ulkatan, V. Deletis)
	D) IONM assisted tethered cord surgery (F. Basaldella, N. Morota, P. Lanteri)
	E) IONM assisted complex spine surgeries (M. Fornari, F. Moscolo, W. Peul)

From Neurosciences to Neurosurgery: The Spinal Cord and Peripheral Nervous System

Part I Neurophysiology

Chairs: W. Peul, G. Pinna

09:00 - 09:20	Spinal cord physiology: Re-thinking somatotopy and implications for Neurosurgery (R. Lemon)
09:20 - 09:40	Spinal cord mapping: How to localize somatosensory and motor tracts during surgery (K. Seidel)
09:40 - 10:10	Keynote lecture 5: Intraoperative neurophysiology in intramedullary spinal cord tumor surgery: Evolution over the past 30 years and future perspectives (V. Deletis)
10:10 - 10:25	Discussion
10:25 - 10:55	<i>Coffee Break</i>

Part II Neurosurgery

Chairs: A. Demetriades, M. Fornari

10:55 - 11:15	Intramedullary spinal cord tumor surgery guided by neuromonitoring: A surgeon's perspective (N. Kononov)
11:15 - 11:35	Monitoring the bulbocavernosus reflex in tethered cord surgery: Advantages and limitations (N. Morota)
11:35 - 11:55	Neurophysiology assisted surgery of spinal dysraphism (G. Squintani)
11:55 - 12:15	Neurophysiology assisted peripheral nerve surgery (L. Rasulic)
12:15 - 12:30	Discussion
12:30 - 13:30	The future of Neuromonitoring: A Neurosurgical and IONM Perspective from EANS and ISIN Leaderships (Chairs: V. Deletis, F. Sala) (Panels: A. Demetriades, I. Fernandez-Conejero, A. Grotenhuis, K. Schaller, A. Szelenyi, S. Ulkatan)
13:30	Closing remarks