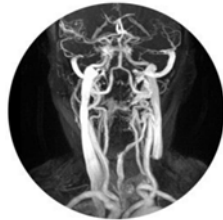


'Neurovascular Perspectives' is the newsletter of the International Society for Neurovascular Disease (ISNVD)

EDITORS

J. Steven Alexander
E. Mark Haacke
Paolo Zamboni
Pierfrancesco Veroux



ISNVD
International Society
for Neurovascular
Disease

President's Column

The ISNVD is a non-profit professional association devoted to furthering the development of research for neurovascular related diseases – including CCSVI. The society will hold annual scientific meetings and sponsor educational and scientific workshops. Target medical groups include, but are not limited to, Vascular Surgeons, Interventional Radiologists, Neurologists, Neurosurgeons, Physicists, and Technologists.

The ISNVD is pleased to have concluded yet another sensational international meeting, this our 7th annual meeting in Taormina, Sicily (Italy) which was an incredible and striking success! This meeting arranged by Dr. Pierfrancesco and Dr. Paolo Zamboni (organized with Centro Congressi) was an unparalleled success!!! Between May 4th and May 6th, a record number of attendees of our meeting including basic and clinical scientists, patient groups and their family attended what was perhaps our best and most sophisticated clinical and scientific program yet. The coordination of the meeting was flawless, providing what has to be a record number of speeches and presentations. I have not ever seen so many speakers stay on time as in this meeting which allowed for a very dense program which everyone found to be an incredible technical feat. The quality and diversity of the work was also

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outstanding from classical overviews to the very most cutting edge work on the roles of the neurovasculature in many different central nervous system pathologies. It is difficult to imagine a more stimulating meeting.

The location of our meeting at the **ATAHotel Capo Taormina** (<http://www.atahotels.it/en/hotel/atahotel-capotaormina/>) situated on the coast of the resort city of Taormina was dazzlingly picturesque! As I stated in my comments summarizing this meeting venue (as well as the content) was truly '*legendary*'- both in terms of the work presented, the advances made towards clinical applications of the many studies presented and the basic molecular and basic science approaches described, the meeting was unparalleled! Our thanks to the Centro Organizzazione Congressi and to Ms. Carola and her staff for superior coordination of the meeting!

The 2017 meeting in Taormina yielded an important series of presentations which continued our tradition of commitment to this increasingly recognized area of investigation. Again we continued our record of academic excellence with the meeting topically focused on the pathophysiology, imaging, and management of stroke.



Dr. Meiyun Wang,
Zengzhou University

So far, we are planning on following

up this next year with the 8th international meeting being held in Zhengzhou University in China, with the meeting being organized by Dr. Meiyun Wang.

Plans for this meeting are in progress and are now under negotiation so please stand by for further news on the website.

Membership in our society membership is increasingly diverse including a greater proportion of younger trainees at the pre-doctoral and immediate postgraduate level which has been a goal of our membership drive. To the new and younger investigators of our society, we

welcome you to the ISNVD. We hope your contributions to this field, linking and establishing mechanistic and clinical connections between neurovascular and neurodegenerative conditions will continue to gain recognition and support!

As the now former President of the ISNVD, I am happy to pass the leadership of the society and the society office to Dr. E. Mark Haacke, one of our founders and an acknowledged world leader in neurovascular imaging. We have also recently concluded election of our next president elect who is Dr. Pierfrancesco Veroux! We would like to thank Dr. Veroux again for having made such an outstanding effort to organize this exceptional meeting. The ISNVD would like to thank the members of the executive and planning committees who met countless times, revising and organizing the session content Dr. E. Mark Haacke, Dr. Robert Zivadinov, Dr. Salvatore Sclafani, Dr. Hector

Ferral, Dr. Michael Dake, Ms. Carol Schumacher, Dr. Paolo Zamboni, Dr. Pierfrancesco Veroux and Dr. Felicity Gavins. We would also like to thank and acknowledge support from the Annette Funicello Research Fund for their continuing support and would also like to extend very special thanks to our donors Ms. Sharon Richardson, Ms. Linda Molyneux and Dr. Sandy McDonald (Barrie Imaging).

With warm wishes,



Dr. J. Steven Alexander
Past-President,
ISNVD



This year over 120 members of the ISNVD, (over 250 total attendees including patient representatives, patients, members of the press and vendors) attended the 3 day conference which was organized by Dr. Pierfrancesco Veroux and Dr. Paolo Zamboni with assistance from the US contingent of the society. This year we had the highest attendance in our history with the highest international participation and the largest number of participating clinical faculty.

Past Meeting Overview



Planning presentation strategies on Day 1 - The coast of Taormina seen from the Atahotel balconv.

This past May 4–6, 2017, the 7th meeting of the International Society for Neurovascular Disease (ISNVD, www.isnvd.org) was held at the Hotel Capo Taormina (in Taormina, Sicily.)

The meeting began on the morning of May 4th with the symposium on **‘Clinical Training’** which opened with **‘Innovative ultrasound imaging of extra-cranial vessels - Training Course on ECD’** which was chaired by Drs. Marcello Mancini and Paolo Zamboni.

This introductory session included presentations by Dr. Marcello Mancini (*‘Ultrasound imaging of vulnerable atherosclerotic plaque’*) as well as by Dr. Marko Tessari *‘Application of a lumped ECD model in CCSVI cases and in post- op follow-up’*. Dr. Francesco Sisini presented *‘What does JVP tell us?’*, Dr. Erica Menegatti *‘JVP Reproducibility’* and Drs. Alessia Giaquinta, Carla Virgilio, Mirko Tessari and Iliaria Bartolomei presented *‘Live cases’*.

The opening ceremony was given by Drs. Pierfrancesco Veroux and Paolo Zamboni. Immediately after the opening ceremony Dr. Mat Daemen gave a keynote presentation on *‘Plaque fissure: an underestimated cause of intraplaque hemorrhage’*

The next (afternoon) session on May 4th included the session **‘Cerebral protection devices in Carotid Stenting’** which was chaired by Dr. Piergiorgio Cao and Dr. Carlo Setacci. This session included presentations by Dr. Allison Halliday *‘Neurological events in ACST2 trial’*, Dr. Enrico Marone who presented *‘Cerebral protection during CEA’*, Dr. Raffaele Pulli *‘Does local anaesthesia reduce the risk of brain hypoperfusion during carotid cross clamping’* Dr. Sonia Ronchey: *‘Crossing the Aortic Arch for CAS: Is it always safe?’*, Dr. Antonio Micari *‘Radial artery approach for CAS reduce the risk of Cerebral embolization’*, Dr. Andrea Stella *‘Are highly calcific carotid plaques less vulnerable?’*, Dr. Franco Grego and Dr. Gianluca Faggioli presented *‘The impact of ischemic cerebral lesions in the outcome of symptomatic and asymptomatic patients submitted to carotid revascularization’*.

Immediately following this session was a clinical debate entitled: **‘Proximal vs. Distal Cerebral protection Devices’** between Dr. Piero Montorsi (supporting pro-Proximal protection devices) and Dr. Piergiorgio Cao who supported pro Distal protection devices.

The next session was **‘New devices and techniques can improve results of Carotid treatment’** chaired by Drs. Mangialardi Nicola and Andrea Stella includes presentations by Dr. Carlo Setacci *‘Endoluminal plaque prolapse in carotid stenting: our experience with Optical Coherent Tomography and IVUS’*, and Dr. Antonio Micari, *‘Ree neurological events of CS: our experience with Roadsaver double layer micromesh stent system’*.

Dr. Francesco Speciale presented *‘Potential benefits of C-guard stent’* and Dr. Francesco Setacci presented *‘As I*



Dr. Nicole Ziliotto presented *‘Exome sequencing and transcriptomic analysis in jugular wall for detection of CCSVI biomarkers in MS’*

Past Meeting Overview

prevent brain damage during carotid reinterventions', Dr. Domenico Palombo 'Eversion technique is my first choice - How I gained the gap with CEA',

Dr. Pierfrancesco Veroux 'New technical option to fix distal intimal flap during eversion carotid endarterectomy', Dr. Laurent Chiche 'Carotid Aneurysm' and Drs. Angelo Argentero and Mauro Gargiulo.

This session was followed by a debate: 'When do I use Close or Open Cell stents in CAS?'. The two sides presented were by Dr. Fabio Verzini supporting closed cells while Dr. Pierfrancesco Veroux supported Open cells. The next session was 'Acute stroke prevention during TAVI and Aortic arch repair'. The session was chaired by Drs. Roberto Chiesa and Michael Dake. Presentations are by: Dr. Corrado Tamburino 'New horizons of transcatheter and aortic valve implantation', Dr. Robert Zivadinov 'Effect of a cerebral protection device on brain lesions following TAVI in patients with severe aortic stenosis', Dr. Ron Lazar 'TAVI and Cognition', Dr. Santi Trimarchi 'Prevention of brain hypoperfusion and damage during open arch repair', Dr. Germano Mellisano 'Spinal cord protection in thoracic aneurysm repair', Dr. Roberto Chiesa 'Open repair of TAA, when and why', Dr. Piergiorgio Cao 'Total endovascular arch repair - does it increase the risk of brain injury?', Dr. Mario Lachat: 'Aortic Arch Repair: The Zurich experience with Nexus stent graft system',

Dr. Geert-Willem Schurink presented 'Brain protection



Dr. Karen Stokes, LSUHSC-S, presenting on Carbonyl chemistry in stroke severity'

strategies in total endovascular arch repair' with Cook stent graft system', Dr. Michael Dake 'Late update of trials with the Gore TBD device' Dr. Nicola Mangialardi 'Parallel graft technique in Urgent Arch Repair and Dr. Franz Moll 'Brain protection and outcome in patient treated with endovascular arch repair'.

On May 5th, (the second day of the meeting) we opened the morning session (Session 1) with **Late breaking Imaging in Acute Stroke**, chaired by Dr. Hai Sun and Dr. L. Nelson Hopkins.

The Presentations include Dr. Hector Ferral 'Angio CT imaging of ischemic brain lesion', which was an excellent contemporary review of the use of CT imaging relevant to stroke and CNS flow abnormalities. Dr. L. Lopez-Ibor presented 'Imaging of intracranial vascular malformations causing stroke'.

Dr. Mark Haacke presented 'STAGE imaging, a new rapid protocol for stroke imaging', which may be an important modality which can be applied as a greater refinement of stroke diagnosis.

Dr. Corrado Cittanti next presented on 'The value of PET-CT imaging to define vital and ischemic brain tissue', Dr. L. Nelson Hopkins 'Timing and imaging in Acute stroke'. Next were treated to a brief **historical lecture** by Dr. Angelo Argentero.

The next session (Session 2) was **New Horizons in the Treatment of Acute Stroke** which was chaired by Dr.



Dr Alexander congratulating Dr. Veroux and Dr. Zamboni at the conclusion of the 2017 meeting

Past Meeting Overview

Piergiorgio Cao and Dr. Allison Holliday.

Dr. L. Nelson Hopkins presented 'Strategies, and therapeutic protocol related to brain lesions in acute setting', Dr. L. Lopez-Ibor presented 'Endovascular treatment of stroke. Looking for evidences'. Next Drs. Francesco Speziale and Nicola Mangialardi debated '**Timing and indications of Carotid treatment in acute settings**', Dr. Francesco Speziale was pro-CEA and Dr. Nicola Mangialardi was pro-CAS. Dr. Carlo Setacci presented 'Cas renaissance: new techniques and devise decrease early and long term brain lesion rate', Dr. Roberto Chiesa presented 'Carotid shunting decreases brain hypoperfusion and damage in patients who underwent CEA in an acute setting. This session was followed by the debate **Carotid treatment within 48 hours in a patient with an acute stroke** Dr. Michael Dake was pro waiting for treatment while Dr. Nelson Hopkins supported proceeding with surgery immediately.

The next Lunch session was '**Latest breaking intra cranial treatments for acute stroke**' which was chaired by Drs. Mario Zappia and L. Nelson Hopkins. The presenters in that session included Dr. Marcello Longo 'Intracerebral thromboaspiration system'.

The first after lunch presentations were the **Annette Funicello Research Fund (AFRF) Presentations** which were chaired by Dr. Paolo Zamboni and Ms. Carol Schumacher. Dr. J. Winny Yun presented 'Neurolymphatics and MS', Dr. Helen Kavounidas presented 'Update on Australian CCSVI', Dr. Robert Zivadinov presented 'Follow up of AFRF', and Dr. Marcella Lagana presented 'Phase contrast MRI measurement of arterial-venous-CSF flow rates',

Dr. Nicole Ziliotto presented 'Exome sequencing and transcriptomic analysis in jugular wall for detection of CCSVI biomarkers in MS' which was a translational study describing potentially important biomarkers which are detected in exosome / microparticulates.

The next session (Session 4) was **Brain hypoperfusion and neurodegeneration**. This session was chaired by Drs. J.S. Alexander and Mark Haacke. Dr. Fabrizio Salvi presented '*When Developmental Venous Anomaly becomes aggressive: a model of brain drainage, hypoperfusion and injury*' followed by Dr. H. Kevin Lin who presented 'Cardiac arrest induced hypoperfusion in neurodegeneration', Dr. Marcella Lagana presented 'Cerebral blood flow measurement with perfusion MRI'.

Dr. G. Cepinskas presented 'Novel protective anti-inflammatory mechanisms in cerebral circulation' which described the use of carbon monoxide releasing molecules in stroke injury. Dr. L. Belayava, (an invited US guest) presented '*Protecting against Cerebrovascular Injury with novel docosanoids*', another novel pharmacological approach for stroke injury. Dr. Chi Ping Chung presented '*Intracranial arterial hemodynamics and cognitive functions*' which was an excellent presentation of her groups working linking both clinical phenomena.

Dr. Mat Daemen presented 'The Dutch Heart Brain Connection program: an update' which was a summary of the decades long correlations between CNS cognitive disturbances and cardiovascular health outcomes.

The next session (Session 5) was **Imaging and Mechanisms of Neurodegeneration** which was chaired by Drs. Mat Daemen and Robert Zivadinov. , Dr. K. Stokes presented 'Protein Carbonyls, Diabetes and stroke risk / severity', Dr. Jake Neumann presented 'Role of delta PKC in synaptic transmission and global cerebral ischemia', and Dr. Francesco Bernardi presented 'Coagulation pathways in MS', Dr. Douglas Fraser presented 'Endothelial compromise in DKA, microbleeds and cognition',

Dr. David Dela Morte presented 'Novel molecular pathways linking metabolic and neurological disorders by regulating vascular homeostasis. The next session (Session 6) was the following morning on May 6th.

Late Research and Talks section included Dr. Mark Haacke who presented ('An update of the presence of CCSVI in Parkinson's disease').



Carol Schumacher (AFRF, ISNVD) and Dr. Alexander at the Patient program.

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The next session (Session 6) was the following morning (on May 6th) which was entitled “**Late Research and Talks selection from abstracts**”. This session was



Undergraduate and graduate Students working on presentations.

chaired by Drs. Mark Haacke and Clive Beggs. Dr. Mark Haacke presented ‘*An update of the presence of CCSVI in Parkinson's disease*’. Dr. Hai Sun presented on ‘Moyamoya Disease’, and Dr. Clive Beggs presented ‘Interpreting cervical and intracranial fluid flow signals’, Dr. Eleutorio Toro presented ‘CNS interacting fluid compartments: progress in mathematical modelling’, Dr. Franco Patti presented ‘Gray matter damage and cognitive impairment in primary progressive multiple sclerosis’, Dr. Giacomo Gadda presented ‘Monitoring cerebral venous return in astronauts during space-flights. Correlation with vision impairments and other microgravity symptoms’ which was one of two space-flight presentations in this meeting. This session was followed by two keynote presentations.

One Keynote Presentation was by **Dr. Byung-Boong Lee** who presented “Defective Development of Vena Cava: Embryological interpretation of Hemodynamic Consequences”

The second Keynote Presentation was by **Dr. Seshadri Raju** who presented “Compliance properties of the vein: a forgotten concept. Ideal venous hemodynamic-oriented device for the treatment of obstructive venous disease”

The next session (Session 7) was ‘**Anatomical and hemodynamic changes of venous outflow: could stenting be the solution?**’ Which was chaired by Drs. Salvatore Sclafani and Dr. Ivo Petrov.

Dr. **Byung-Boong Lee** presented ‘*Obstructive truncular venous malformations*’, which was an excellent overview of how venous malformation contribute to blood flow disturbances in general with a focus on CNS participation.

Dr. Giaquinta Alessia presented ‘*Assessment of venous stenosis: emerging role of the intravascular ultrasound*’ which was an important update on how US can best be applied to identify and track stenosis, particularly in the setting of venous disturbances related to CNS pathophysiology.

Dr. Kenny Liu presented ‘Intracranial venous stenting for Ehlers Danlos’, which is a connective tissue condition which affects blood vessels and other organ systems, this was a unique insight into how venous stenting is making in-roads clinically paralleling arterial stenting which is much more clinically advanced.



Dr. Alireza Minagar, Dr. Jake Newman, Dr. Kevin Lin and Ms. Carol Schumacher (Day 5).

Dr. S Raju presented ‘*Indications and potential benefits of stenting in venous occlusive disease*’ which continued the concepts of applying stenting. Next Dr. Michael Dake presented ‘*Clinical presentation and treatment of occlusive venous disease of the thorax and neck*’, which was another important presentation in this session in which methods for venoocclusive disease were reviewed.

Dr. Pierfrancesco Veroux presented ‘*Compliant venous scaffold for the treatment of impaired venous outflow from the brain*’, which was a fascinating presentation on new technologies now being used by Dr. Veroux’s group. Dr. Paolo Zamboni presented ‘*Surgical repair normalizes IJV flow, reduces ventricle volume and improves brain perfusion*’ which showed benefits of applying such surgical approaches in the CNS.

Dr. Sal Sclafani concluded this session presenting ‘*Left renal vein stenting is an effective method to improve spinal cord blood flow*’ which was another example of the utility of applying these venous stenting approaches with good effect.

The final presentation session (Session 8) was ***Bridging the gap between extracranial flow and the Brain***. This session was

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chaired by Drs. Michael Dake and Dr. Hector Ferral.

Dr. Noam Alperin, an invited US guest presentation presented *'The brain/eye axis and CSF: Spaceflight-induced vision impairments in astronauts'* which was an interesting application of how blood flow alterations in zero gravity influence vision via blood perfusion and CSF flow.

Dr. Hector Ferral next presented *'Statistical evaluation of the Amsterdam study'* which was a summary of the self-reported outcomes of CCSVI patients collected by

Dr. Ivo Petrov presented *'Hypercapnia and hypoxemia due to impaired venous blood draining and significant improvement after endo-vascular treatment in patients with CCSVI'*, Dr. Aldo Bruno/ Luigi Califano presented *'24-month follow-up of PTA in Meniere's disease: the*



Dinner program on May 5 at the 'Grand Hotel Timeo'

surgeon and Vestibular assessment', Dr. Alessia Giaquinta presented *'Clinical benefits after balloon angioplasty in patients with impaired IJV flow'* Dr. Paolo Zamboni presented the update of his *'Brave Dreams trial'* which

The **Awards and Closing Remarks** was presented by Drs. J. Steven Alexander and Pierfrancesco Veroux. This year several awards were made to young investigators in the society who made important contributions to science and whose presentations distinguished this meeting.

Dr. Dejan Jakimovski, PhD was recognized with our societies highest award, the **'Tracy Putnam award'** for three outstanding presentations: "Imaging of the vascular system using magnetic resonance venography

(MRV) – factors influencing inter-subject comparisons" as well as for the presentation, "Low or retrograde facial vein flow is associated with more advanced global and regional brain



Dr Zamboni, Dr. Mancini, Dr. Menegatti and Dr. Sisini on break outside the meeting.

atrophy in MS" and "Higher frequency of neck vessels in multiple sclerosis patients-association beyond body mass index, age and gender influence."

Dr. Niels Bergsland was also recognized for his presentation, "Patterns of cerebral blood flow in the gray matter of healthy individuals: Cross sectional independent component analysis study." Under consideration for award.

Dr. Stefano Viotti was also recognized for the presentation "Multiple sclerosis lesion characterization with SWI and QSM at 1.5 T"

Several excellent poster presentations were also recognized this year:



Patient program outside on the Balcony of the Taormina Conference Center, May 6, 2017

Nikolaos G. Tsamopoulos, "Neurovascular pathways to neuroinflammation in Glaucoma."

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Nivedita Agarwal, “Can non-invasive phase contrast cine MR imaging replace lumbar puncture in Idiopathic intracranial hypertension? A case study.”

Dario Carlo Alpini, “A putative specificity of Vestibular CCSVI and its relevance to treatment planning?”



Valentina Tavoni, “Ultrasound Quality Control Test for the Internal Jugular vein Instantaneous Flow Calculation” (2nd place poster).

The **Meeting with patients associations** was chaired by Drs. Fabrizio Salvi, Ms. Carol Schumacher, Pierfrancesco Veroux, and Paolo Zamboni with a **keynote testimonial** by *Ms. Nicoletta Mantovani*.

This address was followed by a presentation on the use of Qi-gong / yogic exercise modalities for individuals suffering from physical disability e.g. multiple sclerosis. This meeting was followed up by informal meetings outside the conference center with a beverage and buffet. Besides being an outstanding conclusion to the meeting, this was an excellent networking opportunity for the patient groups to identify problems in public perception of disability, our society and to identify issues which patient members would like to see addressed in future meetings of the ISNVD.

**Thank you for attending the
Taormina Meeting!**

Updates!

Please check out our new website updates at www.isnvd.org.

Questions?

You can contact Dr. Mark Haacke directly by emails at NMRImaging@gmail.com or his assistant Ms. Rana El-Hachem at: rana.c.elhachem@gmail.com

