Ogni dottorando deve partecipare ad almeno 5 tra le seguenti sessioni / letture magistrali / workshop

Each Ph.D. Student must attend at least 5 of the following Sessions / *Letture magistrali* / Workshops

Principles of Neurovascular Diseases

May 30 and 31st, 2019

PROGRAMME

Workshop

DAY 1 – May 30, 2019
ROOM TORQUATO TASSO
Title: Strategically Acquired Gradient Echo (STAGE) imaging for brain tissue quantitative mapping and vessel enhancement

Program presentation: M. Haacke, Detroit

Moderators M. Lagana, Milan, and E.M. Haacke, Detroit

8:30 to 8:50 What is quantitative mapping? Concepts and clinical applications. Y. Ge, New York
8:55 to 9.15 T1 mapping using inversion recovery and gradient echo sequences. C. Gandini Wheeler-Kingshott, London
9.20 to 9:35 A rapid 5 minute STAGE imaging protocol: Clinical applications from collaborating sites. E.M. Haacke, Detroit
9:40 to 10:00 - Quantitative clinical MRI using STAGE at 1.5 T: Implementation and clinical results. M. Laganà, Milan
10:05 to 10:45 - Challenge: brain longitudinal relaxation time (T1) mapping using STAGE or other ad-hoc T1 mapping.
10.45 -11.00 Final Brainstorming

Workshop description
The workshop has the aim to discuss quantitative mapping, its possible clinical applications and how to run a practical rapid multi-contrast imaging protocol for obtaining different brain tissue maps. Usually, quantitative maps are obtained with specific sequences, which last about 5-7 minutes each. With the STrategically Acquired Gradient Echo (STAGE) protocol, it is possible to reconstruct proton spin density, T1, R2* and QSM maps, as well as to have T1w, PDw, MRA and SWI images, in about 5 (7) minutes at 3T (1.5T). The presentations will show examples of clinical studies; the criteria used for sequence parameters selection; and demonstrate how processed images are obtained. The STAGE protocol has been used by numerous centres worldwide, due to active collaborations with Dr. Haacke's group. Examples from many sites will be shown throughout these presentations.
Since in Italy the MRI scanners used for diagnosis and routine clinical use in most of the Radiology departments are still 1.5T, the STAGE parameters have been adapted for obtaining good quality images also at this field strength (in collaboration with Dr Laganà and IRCCS Fondazione Don

Gnocchi). The quantitative mapping values in different brain tissues, their comparison with published values, and their repeatability will be presented.
At the challenge, the T1 maps provided by the participating groups using the guidelines and a link provided to partecipant, will be shown, and the values inside different tissues of interests in healthy subjects will be compared, separately for 1.5T, 3T and 7T MRI scanners.
The final aim of the workshop is to know what can be obtained using the STAGE protocol, and how to implement it on a MRI scanner used for clinical or research purposes. The results of the challenge will make it possible to compare the results obtained using STAGE or ad-hoc sequences, as well as lay the foundations for possible comparative studies.

Lettura magistrale

Ferrara, Italy – 30 May, 2019 ROOM TORQUATO TASSO
Program Presentation: M. Giganti, Ferrara
12:30 - 13.30 – Keynote Lecture Raymond V. Damadian.

The Story of MRI: MRI's Profound Current Prospects of Visualizing and Quantifying Cerebrospinal Fluid (CSF) Flow and the Role of CSF Flow Obstruction in the Genesis of the Symptomatology of Chiari, Syringomyelia and the Neurodegenerative Diseases
Dr. Damadian is one of the pioneer of MR body scan. His lecture is a rare possibility to learn MRI from one of the inventors. The lecture, starting from the MR principles, is focused on the CSF flow MRI quantification. The pathophysiology of cerebral fluids and circulation and the paramount role of CSF dynamics in Chiari, syringomyelia as well as in several neurodegenerative disorders with particular respect to multiple sclerosis will be also presented in detail.

Session 5: **"Headache and the cerebral venous system."** 13.49-14.42
Moderators: PF. Veroux, Catania; C. Pratesi, Florence; M. Zappia, Catania.
13.51-14.01 The intra and extracranial veins in relation to chronic migraine. P. Onorati, Rome
14.03-14.13 Headache prevalence in patients with jugular outflow disturbances. Q. Yang, Beijing
14.15-14.25 Headache sustained relief following extracranial venous angioplasty. A. Giaquinta, Catania.
14.27-14.37 Discussion starters: A. Siddiqui, Buffalo; P. De Bonis, Ferrara; T. Lupatelli, Rome

DAY 2 – May 31st, 2019

Session 1: **"Vascular Risk Factors in Neuroinflammation-Neurodegeneration "** 8.00- 9.24
Moderators: R. Zivadinov, Buffalo; E. Granieri, Ferrara
8.02-8.12 Diet, life style, and cerebral inflow effects on neuroinflammation-neurodegeneration in MS patients. D. Jakimovski, Buffalo
8.14-8.24 An animal model of cerebral venous insufficiency: implication for neuroinflammation. M. Mancini, Naples
8.26-8.36 Perfusion abnormalities and cardiovascular comorbidities in neurological disorders. N Bergsland, Buffalo-USA.
8.38-8.48 Concurrent assessment of perfusion and functional connectivity in Parkinson's disease. A. Laganà, Milan

8.50-9.00 Coagulation circulating proteins in Multiple Sclerosis F. Bernardi, Ferrara.
9.02-9.12 QSM/SWI technique to detect microbleedings in neurodegenerative diseases M. Haacke, Detroit
9.14-9.24 Discussion starters: C. Gandini Wheeler-Kingshott, London; G. Marchetti, Ferrara; P. Longobardi, Ravenna.

Lettura magistrale
9.26-9.28 Keynote Lecture. Presenter. P. Zamboni, Ferrara
9.28-9.43 Cerebral lymphatic drainage and the potential links with neurodegeneration. A. Louveau, Boston

Session 2 "**Age Related Vascular Changes "** 9.45-10.57
Moderators: Y. Ge, New York; M Wang, Zheng-Zhou
9.47-9.57 Risk Factors for Alzheimer and Dementia. Volpato S, Ferrara
9.59-10.09 Epidemiology of cardiovascular comorbidities in aging of multiple sclerosis. R. Zivadinov, Buffalo-USA
10.11-10.21 Is jugular venous pulse involved in aging? E. Menegatti, Ferrara
10.23-10.33 The effect of sleep quality on MCI susceptible brain regions in cognitively intact elderly subjects. N. Alperin, Miami
10.35-10.45 New perspectives on age-related white matter hyperintensities in VCID research. Y. GE, New York
10.47-10.57 Discussion starters: S. Chiesa, London; M. Lagana, Milan

Session 3 "**The Jugular Venous Pulse: the key to assess the heart-brain axis?"** 10.59 -12.11
Moderators: P. Zamboni, Ferrara; Y. Ge, New York; R. Ferrari, Ferrara
11.01-11.11 State of the art on Jugular Venous Pulse. C. Rapezzi, Bologna
11.13-11.23 The Ultrasonographic assessment of the Jugular Venous Pulse. AM Malagoni, Ferrara
11.25.-11.35 A model for predicting central venous pressure from changes in IJV cross-sectional area CB. Beggs, UK
11.37-11.47 Neck vessels pulsatility and dementia. C. Scott, London
11.49–11.59 Pulse Pressure Waves and the Function of the CNS. B. Juurlink, Mill Bay.
12.01-12.11 Discussion starters: E. Toro, Trento; S. Spadaro, Ferrara; F. Sisini, Ferrara;

Lettura magistrale
13.02-13.04: Keynote Lecture. Presenter C. Anile, Rome
13.04-13.19 Does the CSF Circulate? M. Klarica, Zagreb.