

ECTRIMS SUMMER SCHOOL 2016

Use of MR imaging in diagnosis and management of multiple sclerosis

28-30 June 2016, Vienna / Austria

This ECTRIMS Summer School is directed to young MS clinicians and investigators with an interest in the diagnosis and management of multiple sclerosis (MS). The immediate objective is to equip them with the knowledge and expertise they need to (i) accurately diagnose MS, (ii) evaluate the effectiveness of drugs in MS, (iii) understand the value of non-conventional and quantitative MR for assessing the structural, metabolic and functional damage, and (iv) become familiar with the different techniques used for imaging analysis.

The course will provide (i) didactic lectures from faculty and (ii) interactive (and computer assisted hands-on) workshops that involve the active participation of school attendees supported by faculty. It will be focused on the following topics:

- Concepts of the different MR techniques that can be used in the diagnosis and management of MS
- Standardization of brain and spinal cord MR imaging in the diagnosis and monitoring MS
- Typical and atypical brain and spinal cord features in MS
- Role of MR imaging in the diagnostic work-up of MS
- Role of MR imaging in the differential diagnosis of MS
- Benefits and limitations of MR imaging as a predictor of treatment response
- Quantitative MR measures in clinical practice
- Role of MR imaging in the detection of treatment related adverse effects
- MR imaging analysis procedures

Speakers include internationally renowned experts, who were selected based on their scientific expertise and educational skills to ensure high-quality lectures and interactive case discussions.

The faculty will be asked to select papers which will be sent to the participants with a “reading guide” in order for them to exercise their ability to identify in the current literature what is important and reliable. Finally the participants will actively participate in working groups and prepare MRI projects for clinical practice and research that will be discussed in a final Plenary Session.

By the end of the course, participants should be able to handle practical issues in the diagnostic process, to appreciate the potential value of conventional and non-conventional MR in predicting and assessing treatment efficacy and in monitoring disease progression, and understand basic concepts in imaging analysis procedures.

Structure of the Course:

- 15 Didactic Lectures (25-30 minutes each, 10 minutes discussion)
- 6 Workshops (90 minutes, 3 groups). Each workshop will be led by two leaders. Additional faculty will be invited as discussants to support the practical discussions during the sessions. The leaders will be asked to prepare highly interactive workshops, which will be repeated three times (for groups A, B and C).
- 3 Working Groups and related Plenary Session
- Hands-on Workshops (2 groups)

TUESDAY, 28 JUNE 2016

- 08.15 - 08.30** **Course Presentation**
- 08.30 - 09.15** **Introductory Lecture: History of MRI in MS**
F. Fazekas (Graz, AT)
- 09.15 - 11.15** **Session 1: MRI Diagnosis 1**
Chairs: X: Montalban (Barcelona, ES), A. Rovira (Barcelona, ES)
- 09.15 Typical brain and spinal cord MR features
M. Wattjes (Amsterdam, NL)
- 09.45 Atypical MR features
C. Enzinger (Graz, AT)
- 10.15 Differential diagnosis and MS mimics
A. Rovira (Barcelona, ES)
- 10.45 Diagnostic criteria
X. Montalban (Barcelona, ES)
- 11.15 - 11.45** **Coffee Break**
- 11.45 - 12.45** **Session 2: MRI Diagnosis 2**
Chairs: J. Palace (Oxford, UK), A. Thompson (London, UK)
- 11.45 Primary progressive MS
A. Thompson (London, UK)
- 12.15 Pediatric MS
B. Banwell (Toronto, CA)
- 12.45 - 14.15** **Lunch Break**
- 14.15 - 15.15** **Session 2: MRI Diagnosis 2 (continued)**
Chairs: J. Palace (Oxford, UK), A. Thompson (London, UK)
- 14.15 Neuromyelitis optica spectrum disorders
J. Palace (Oxford, UK)
- 14.45 *ADEM*
A. Rossi (Genoa, IT)

- 15.15 – 16.45** **Session 3: MRI in monitoring disease progression and treatment effect**
Chairs: D. Miller (London, UK), N. De Stefano (Siena, IT)
- 15.15 Conventional MRI in monitoring and predicting treatment response
L. Kappos (Basel, CH)
- 15.45 Brain/spinal cord atrophy as a predictor of disease progression
N. De Stefano (Siena, IT)
- 16.15 MRI in monitoring treatment related adverse effects and safety aspects concerning gadolinium
T. Yousry (London, UK)
- 16.45 - 17.00** **Coffee Break**
- 17.00 - 18.00** **Computer Assisted Hands-on Workshop**
Basic Quantitative MRI analysis in MS, Part 1 – Lesion segmentation
S. Ropele (Graz, A)
Group 1
- 19.30** **Dinner at the hotel**

WEDNESDAY, 29 JUNE 2016

- 08.45 - 09.45** **Computer Assisted Hands-on Workshop**
Basic Quantitative MRI analysis in MS, Part 2 – Brain atrophy
S. Ropele (Graz, A)
Group 1
- 09.45 - 11.15** **Workshops 1-3: How and when should brain and spinal cord MRI be performed in the diagnostic and monitoring process?**
(3 groups, 30 minutes each)
- Workshop 1: Assessing brain lesions
M. Wattjes (Amsterdam, NL), H. Vrenken (Amsterdam, NL)
- Workshop 2: Assessing spinal cord lesions
H. Kearney (London, UK), C. Lukas (Bochum, DE)
- Workshop 3: Assessing brain and spinal cord volumes
M. Battaglini (Siena, IT), P. Valsasina (Milan, IT)
- 11.15 - 11.45** **Coffee Break**

- 11.45 - 12.45** **Session 4: MRI: advanced techniques. Their value in clinical practice and research**
Chairs: M. Filippi (Milan, IT), O. Ciccarelli (London, UK)
- 11.45 Advanced techniques for assessing focal lesions
D. Reich (Bethesda, US)
- 12.15 Advanced techniques for assessing diffuse damage
M. Filippi (Milan, IT)
- 12.45 - 14.15** **Lunch Break**
- 14.15 - 15.15** **Session 4: MRI: advanced techniques. Their value in clinical practice and research (continued)**
Chairs: M. Filippi (Milan, IT), O. Ciccarelli (London, UK)
- 14.15 Grey matter imaging
J. Geurts (Amsterdam, NL)
- 14.45 Spinal cord and optic nerve imaging
O. Ciccarelli (London, UK)
- 15.15 - 16.45** **Workshops 4-6: Advanced MR techniques**
(3 groups, 30 minutes each)
- Workshop 4: Microstructural and Molecular measures
C. Wheeler (London, UK), B. Bodini (Paris, FR)
- Workshop 5: fMRI: task related, resting state
M. A. Rocca (Milan, IT), D. Pareto (Barcelona, ES)
- Workshop 6: MR spectroscopy
D. Pelletier (New Haven, US), M. Inglese (New York, US)
- 16.45 - 17.00** **Coffee Break**
- 17.00 - 18.00** **Computer Assisted Hands-on Workshop**
Basic Quantitative MRI analysis in MS, Part 1 – Lesion segmentation
S. Ropele (Graz, AT)
Group 2
- 19.30** **Summer School Dinner**

THURSDAY, 30 JUNE 2016

- 08.45 - 09.45** **Computer Assisted Hands-on Workshop**
Basic Quantitative MRI analysis in MS, Part 2 – Brain atrophy
S. Ropele (Graz, A)
Group 2
- 09.45 - 11.15** **Working Groups**
(3 working groups, 90 minutes each)
- Participants will work in 3 working groups (A, B, C) and prepare 3 MRI projects for clinical practice and research. The projects should consider MRI techniques, timing, and measures
Participants will receive feedback from three senior investigators (facilitators).
- Working Group A: MS Diagnosis
Facilitators: Xavier Montalban (Barcelona, ES), Christian Enzinger (Graz, AT), Brenda Banwell (Toronto, CA)
- Working Group B: MRI in monitoring and predicting treatment response (relapsing remitting MS)
Facilitators: David Miller (London, UK), Alex Rovira (Barcelona, ES), Daniel Reich (Bethesda, US)
- Working Group C: MRI in monitoring disease progression (progressive MS)
Facilitators: Nicola De Stefano (Siena, IT), Maria A. Rocca (Milan, IT), Olga Ciccarelli (London, UK)
- 11.15 - 11.45** **Coffee Break**
- 11.45 - 13.15** **Plenary Session**
(3 working groups, 30 minutes each)
- Participants' presentations of their acquired knowledge
Participants will make proposals of MRI projects for clinical practice and research. Each project will be presented by WG coordinators and discussed. The session will be led by 3 facilitators
- 13.15-13.45** **Panel Discussion**
- 13.45-14.00** **Wrap up**
D. Miller (London, UK)
- 14.00 - 15.00** **Lunch and individual departure**