

**-NEWS RELEASE-**

## **How optic nerve imaging can help monitor therapeutic effects in MS: ECTRIMS congress**

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**16 September 2016, London:** The 32<sup>nd</sup> Congress of the **European Committee for Treatment and Research in Multiple Sclerosis (MS)** continued today in London (September 14-17). New presentations revealed how imaging the retina and optic nerves can provide key information on disease progression in MS, including how effective treatment strategies are at slowing down those changes.

A comprehensive series of reviews, data and original reports explored and defined how researchers can use the visual system to better understand the disease process responsible for MS. Including, how imaging of the optic nerve and retina can offer an interventional trial platform for proof of concept studies.

### **The importance of OCT imaging**

Peter Calabresi (Director of the MS Center at Johns Hopkins, Baltimore, MD, USA), began the session by outlining the use and importance of Optical Coherence Tomography (OCT) as a non-invasive technique that is able to display and quantify retinal pathology. This standard imaging technology is widely available and is reproducible across different centers. In fact, it has been validated as a reliable indicator of disease progression in both longitudinal and cross-sectional datasets.

### **Using OCT to monitor drug response in MS**

Raju Kapoor (University College, London, UK) described several clinical trials that have assessed the neuroprotective potential of various drugs by studying their effect on patients with optic neuritis. Using visual system imaging to monitor the impact of treatments on optic nerves themselves is a significant advance. However, more encouraging, is the potential of monitoring the response within the visual system could also provide information about the impact of the drug on lesions elsewhere in the central nervous system.

### **Can OCT scans predict disease progression?**

In his introduction, Calabresi touched on a recent meta-analysis showing how well OCT retinal scans can accurately predict clinical outcomes five years later, mentioning an update on new data on predictions at 10 years. Alissa Rothman, a researcher in Calabresi's group went into the study in more detail.

A total of 89 participants were included, most of them female patients with relapsing remitting MS who had a baseline expanded disability status scale (EDSS) of 2.8. Status OCT scans were performed on each patient at entry and follow up took place over a 10-year period. After using various models and adjusting for confounding factors such as age, sex and a history of optic neuritis, the total macular volume measured by the original OCT scans was found to accurately predict the EDSS scores at the ten-year follow up point.

In particular, the changes within the eye over the first 2-3 years seem to have the greatest predictive value.

Finally, Justin McKee (University of Oxford, UK) presented the results of the Amiloride Acute Optic Neuritis trial (the ACTION trial). Amiloride, a repurposed diuretic, which targets and blocks acid sensing ion channel 1 (ASIC1), is over-expressed in mouse models of MS and is present in post-mortem tissue from MS patients.

Previously, McKee explained, a cohort study in progressive MS had suggested that Amiloride may have a neuroprotective effect in MS. He then reported his group's current study in which 48 patients with acute optic neuritis (within 28 days of onset) were given 10mg of Amiloride or a placebo. Treatment was continued for 5 months, then stopped for a month before outcomes were measured at 6 months and then again at 12 months.

Disappointingly, thickness of the retinal nerve fiber layer in the Amiloride treatment group was not significantly less than in the placebo group. The study included a number of secondary outcome measures, but no differences were observed between the groups here either.

Discussions following the presentation explored reasons for this negative result and many experts present focused on the therapeutic window in acute optic neuritis, which is very likely to be as little as 7 days. The potential of earlier treatment with Amiloride cannot be dismissed completely.

Peter Calabresi, Director of the MS Center at Johns Hopkins, Baltimore, MD, USA: *"Research in this area of MS is now focusing on ways to understand the way in which immunomodulatory therapies work – we know they do, but we don't understand fully how. Another major focus is to find out more about the mechanisms that lead to neuronal loss in MS so that we can develop new therapies to target MS progression that occurs without discernable inflammatory lesions."*

**-ENDS-**

#### **Notes to editors**

The European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS) is an independent representative European-wide organisation devoted to multiple sclerosis (MS). For a quarter of a century, ECTRIMS has served as Europe's and the world's largest professional organisation dedicated to the understanding and treatment of Multiple Sclerosis

#### **MISSION**

To facilitate communication, create synergies, and promote and enhance research and learning among professionals for the ultimate benefit of people affected by MS.

#### **VISION**

ECTRIMS works with researchers and clinicians of its member countries and with other organisations that share similar missions and objectives on a worldwide scale, creating networking and collaboration opportunities. The ultimate goal of ECTRIMS is to improve basic and clinical research and clinical outcomes in MS.