

## **WITHIN-NETWORK COHERENCY RESTORATION AFTER BOTOX TREATMENT IN BLEPHAROSPASM**

**G. Csete**<sup>1</sup>, N. Szabó<sup>1,2</sup>, E. Tóth<sup>1</sup>, A. Király<sup>1</sup>, P. Faragó<sup>1</sup>, K. Kocsis<sup>1</sup>, L. Vécsei<sup>1,3</sup>, P. Klivényi<sup>1</sup>, Z.T. Kincses<sup>1,2</sup>

<sup>1</sup>*Department of Neurology, Faculty of Medicine, Albert Szent-Györgyi Clinical Centre, University of Szeged, Hungary*

<sup>2</sup>*St. Anne's University Hospital, International Clinical Research Centre, Czech Republic*

<sup>3</sup>*Neuroscience Research Group, MTA-SZTE, Hungary*

[csete.gergo@med.u-szeged.hu](mailto:csete.gergo@med.u-szeged.hu)

The blepharospasm (BPS), with symptom of inappropriate eye-closure, is mostly unknown origin (Albanese et al., 2013). Neuroimaging tools recently showed thalamo-cortical, cerebellar, basal ganglia and cortical alteration, respectively (Obermann et al., 2007; Suzuki et al., 2007; Zhou et al., 2013). It was suggested that sensory and motor circuits are disrupted. The current effective symptomatic therapy is botulinum neurotoxin (BNT) injection (Hallett et al., 2013). Our aim was to investigate how BNT injection modifies the resting brain activity.

Resting state fMRI was measured one week before and six weeks after to the BNT injection with an 1.5 T GE MR Scanner in ten patients. Independent component analysis was used to identify the resting state networks, and dual regression analysis was used to compare the expression of the component before and after treatment.

The expression of the default mode network, visual, auditory, sensory-motor, left-right attention, basal ganglia and cerebellar component were compared before and after treatment. Visual component showed significant augmentation ( $p0.0266$ ) after treatment.

Our investigations showed a treatment related enhanced functional connectivity within primary visual cortex. This might be a partial restoration of the earlier reported compensatory reorganisation in visual cortex.