

Autoantibodies against myelin oligodendrocyte glycoprotein in patients with a psychotic disorder

Nikita van de Burgt¹, Laila Kulsvehagen², Luc Lutz², Nicole Leibold¹, Therese van Amelsvoort¹, Anne-Katrin Pröbstel², Pilar Martinez¹

1. Department of Psychiatry and Neuropsychology, School of Mental Health and Neuroscience (MHeNS), Maastricht University, Maastricht, The Netherlands
2. Department of Neurology, University Hospital Basel, Basel, Switzerland

Myelin oligodendrocyte glycoprotein (MOG) is a glycoprotein located on the surface of myelin sheaths in the central nervous system. Antibodies against MOG result in damage to oligodendrocytes and neurons and, consequently, are associated with demyelinating diseases. However, immunotherapy results in a reduced risk of relapses and better disability outcomes. Additionally, MOG antibodies are significantly associated with Neuropsychiatric Systemic Lupus Erythematosus (NPSLE), a type of SLE that is characterized by cognitive impairment, seizures and psychosis. It is unknown whether these autoantibodies are associated with the clinical manifestation of psychotic disorder.

Blood and CSF samples of 116 patients with psychotic disorder were collected via various recruitment sites in Europe. Blood control samples were derived from non-disease blood donors. Patients were age- and sex-matched with controls. For the detection of MOG autoantibodies, Human Trophoblast (TE) cells were transfected with full-length human or rat MOG or the respective empty vector as a negative control. Transfected cells were incubated with patient sera or CSF and Phycoerythrin-labeled anti-human IgG was used as a secondary antibody. For each patient, the ratio of the geometric mean channel fluorescence (MCF) of the transfected cell line divided by the MCF of the untransfected cell line was calculated. Patients with a MCF above 3.0 were considered positive.

Based on the result, we will determine the correlation between the presence of MOG antibodies and the degree of the clinical manifestation. Overall, these preliminary results suggest that in some cases MOG antibodies may play a role in the psychotic disorder and that immunotherapy may lead to less relapses and a better clinical outcome.

Keywords: Myelin oligodendrocyte glycoprotein, psychotic disorder, antibodies

Division 2 and 3

Work address: Universiteitssingel 50, 6229 ER Maastricht

Telephone: +31(0)43 388 4158 / +31(0)43 388 1113

E-mail: nikita.vdburgt@maastrichtuniversity.nl