EEVA AUVINEN
LAURA AIRAS
MARJATTA LEIRISALO-REPO
ANNA-KATRIINA HIMANEN
KLAUS HEDMAN

SINIKKA SIHVO
Ph.D., Adjunct Professor,
Research Manager
National Institute for Health and
Welfare, THL/Finohta
E-mail: sinikka.sihvo@thl.fi

JC virus antibody testing in assessment of the risk of progressive multifocal leukoencephalopathy

Background

Patients with immune mediated diseases receiving biological treatments have an increased risk of JC virus reactivation and progressive multifocal leukoencephalopathy (PML) due to the actions of certain immunomodulatory medications.

Aim

The aim of this review was to evaluate the feasibility of JC virus antibody testing in PML risk assessment among MS, Crohn and rheumatoid patients receiving biological treatments (natalizumab, rituximab, belimumab).

Methods

A systematic search of the literature was performed to find those scientific studies where JC virus antibody testing had been used in PML risk assessment.

Results

Patients with increased PML risk can be identified using antibody testing. Patients with previous immunosuppressive medication who have been treated with natalizumab for more than two years have a PML risk of up to 11/1000. Among JCV antibody negative patients the corresponding risk is ≤0.09/1000. The rate of false antibody positive patients is approximately 3%. JCV DNA measurement may remain negative even after development of PML, suggesting that it is a less reliable measure of PML risk. Very few data exist on PML risk assessment among other than MS patients.

Conclusions

JCV-IgG antibody positivity is a marker of potential PML risk. The risk among antibody negative individuals is low, but they should still be followed up because of the potential for seroconversion.