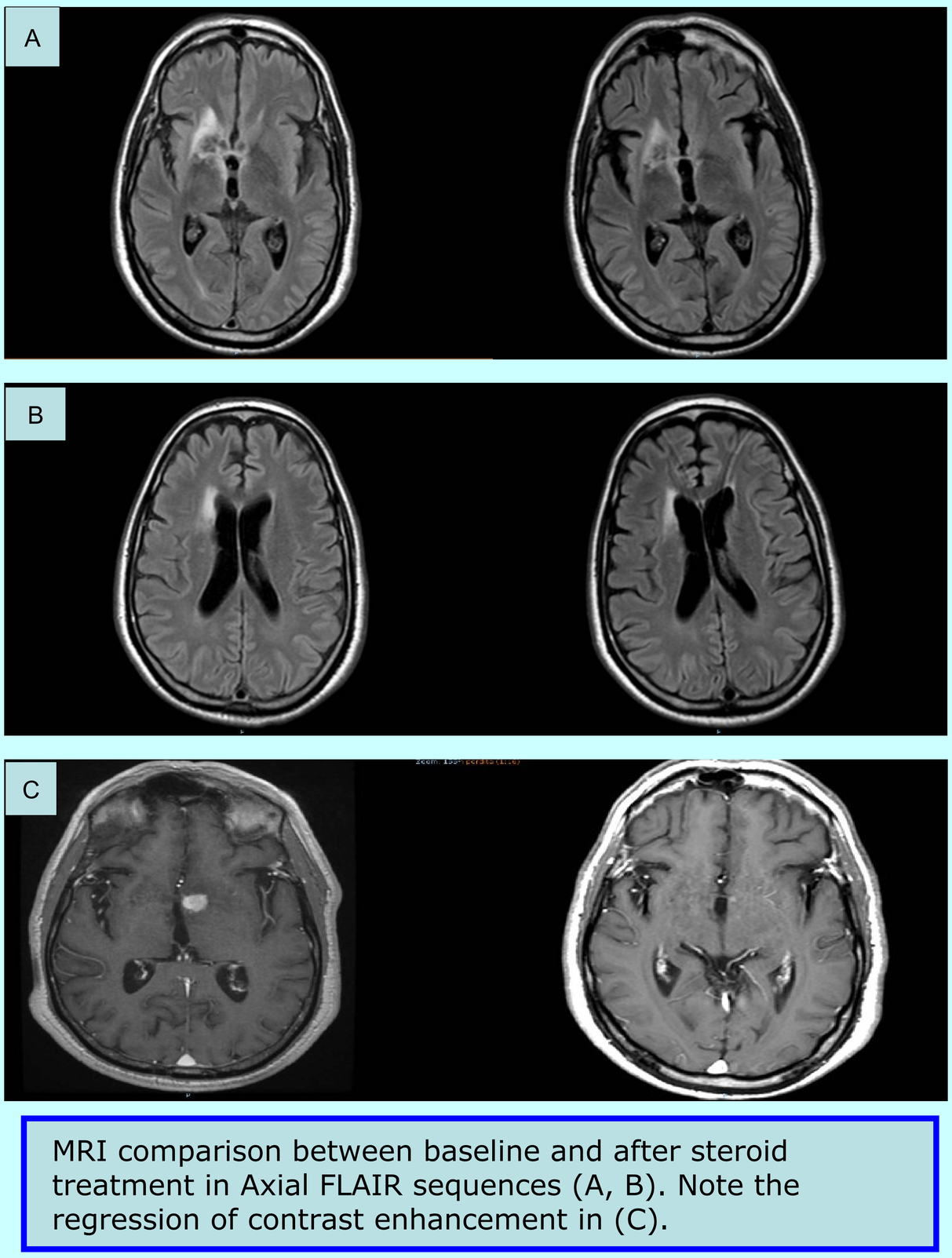
Detection of CSF anti-GluR3 antibodies in a patient with behavioral impairment without epilepsy: a case report

E.Contaldi[1], N.Golfrè Andreasi[1], L.M.Caniatti[1]

[1]Neurology Department, University of Ferrara, Italy

Objectives: **Autoimmune encephalitides are a group of disorders characterized by subacute onset of altered mental status, memory impairment and psychiatric or movement abnormalities. Autoantibodies against neuronal receptors and synaptic proteins may be found. To date, poorly is understood about the mechanisms underlying these disorders and the pathogenetic role of autoantibodies.**

Materials and methods: **R.A, male, 59 years old. The patient came to our attention for the development in 8 months of confusion, irritability and lapses of memory. He was dozy during the day and showed frequent arousals during the night. Brain MRI performed after 5 months the development of symptoms showed a capsulo-thalamic lesion in the left hemisphere with nodular contrast enhancement and cortico-subcortical atrophy. No therapy was started, but because of the progressive worsening of symptoms the patient was admitted to our department. Neurological assessment showed: loss of space-temporal orientation, anterograde amnesia and a slight right-side hemiparesis. EEG performed on day 2 after hospitalization showed aspecific slow abnormalities in a generalized slowed pattern. In another EEG performed no epileptiform activity was seen. Brain MRI showed regression of contrast enhancement of the lesions in left brain with residual hyperintensity around the third ventricle; both optic tracts were normal and visual evoked potentials were negative too. We performed blood tests such as: HIV and syphilis (negative) and autoimmune panel (aspecific positivity of ANA and IgG anti-β2-glycoprotein). CSF showed slight hyperproteinorrachia; infectious diseases were excluded. Suspecting a paraneoplastic disorder, the patient underwent a thoracoabdominal CT which showed a small nodular area in the right lung and a hypodense area in the 4th liver segment (both aspecific). Oncomarkers in blood were not remarkable. Neuronal antibodies were tested in CSF and serum with the following results: anti-GLUR3 A and B peptide positive in CSF and negative in serum. ABGA and MOG positive in serum. We treated the patient with Methylprednisolone bolus for three days: slight clinical improvement was seen and control brain MRI showed additional reduction of hyperintensity around the third ventricle; no more contrast enhancement was visible.**



MRI comparison between baseline and after steroid treatment in Axial FLAIR sequences (A, B). Note the regression of contrast enhancement in (C).

Discussion and conclusion: **this case is intriguing because of the ambiguous relationship between clinical assessment and antibody detection. Although the usual correlation with Rasmussen encephalitis and epilepsy is not hereby confirmed, we propose the diagnosis of an autoimmune encephalitis associated with anti-GluR3 antibodies. Furthermore, the substantial role of these antibodies in psychiatric and cognitive symptoms has been proved in a study comparing epileptic patients with and without antiGluR3 antibodies. Also in mice the presence of GluR3 Ab's was associated with abnormal behaviour, but these findings need to be further developed.**

References

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