Limbic encephalitis as a model of immune-mediated epilepsies: definition, etiology, electro-clinical features and outcome.

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Purpose. Limbic encephalitis (LE) is an overlooked, potentially treatable condition, typically characterized by the sub-acute onset of amnestic syndrome, psychiatric features (including behavioral/personality changes and mood disturbances) and seizures. The aim of our study is to describe and analyze the electro-clinical features, serological findings, neuroimaging characteristics and outcome of 22 LE patients in order to further understand this complex condition and improve its therapeutic strategies**.**

Methods. This is a retrospective cohort study including adult patients with electro-clinical features consistent with the diagnosis of "probable LE"[1], identified between January 2010 and January 2015. Demographic data, seizure semiology, EEG pattern, MRI features, complete CSF and serum findings, therapeutic strategies were collected and reviewed.

Figure 1. *General characteristics.*

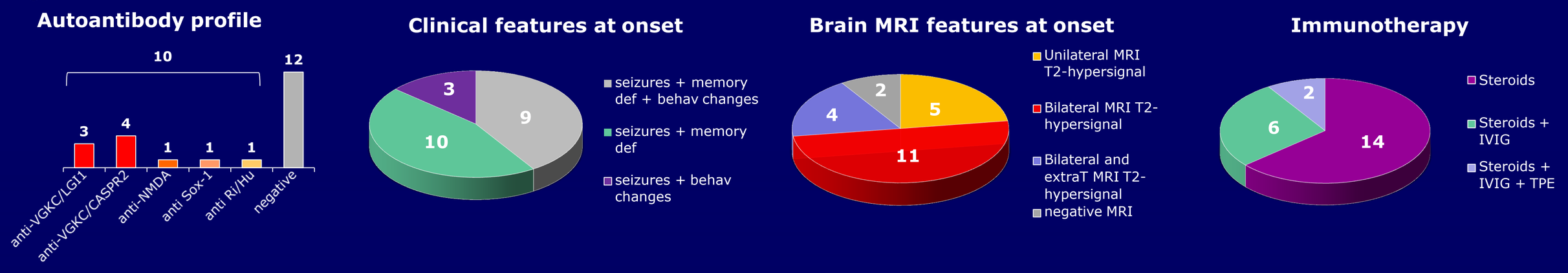
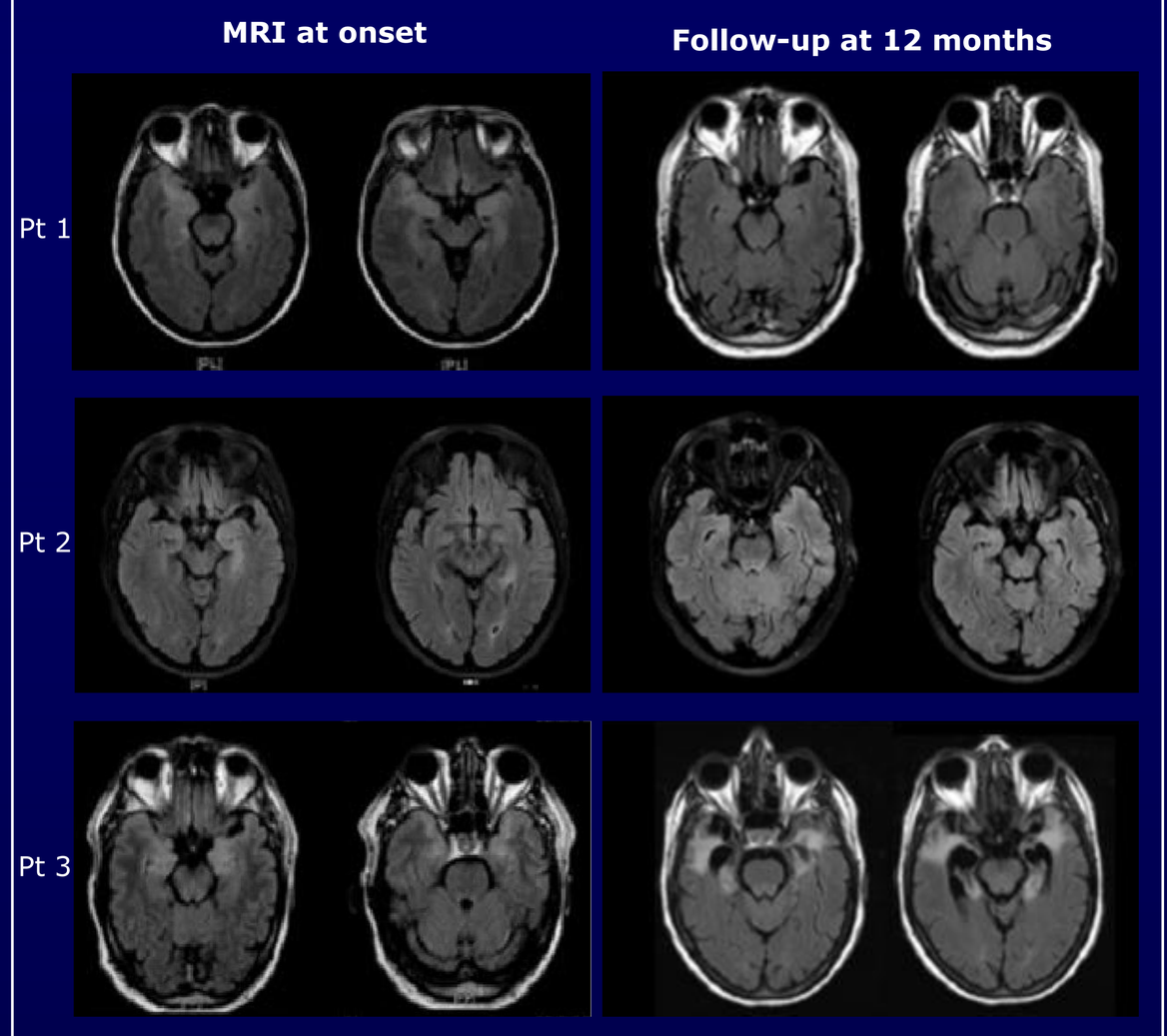


Table 1. *Complete general findings in LE patients.*

History of recent infective/inflammatory disease	
- Yes	5/22
History of neoplasms	
- Yes	4/22
Cognitive disturbances (Memory functions)	
- Amnestic/Non-amnestic	19/22
Mood/behavioural changes	
-Depressive disorder	7/22
-Agitation/delirium	5/22
Type of seizures/paroxysmal movement disorders	
- Focal seizures (with/without consciousness impairment)	20/22
- Facio-brachial dystonic seizures (FBDS)	2/22
- sTCGS	7/22
- Cluster seizures/NCPSE	5/22
Other signs/symptoms	
-Sleep disorders	8/22
-Autonomic/sensorial alterations	2/22
Ictal EEG (14/22)	
- Unilateral	5/14
- Bitemporal/diffuse	9/14
Laboratory findings	
- Hyponatremia	7/22
Disease duration at time of diagnosis/treatment	
-1-2 months	12/22
-3-6 months	10/22
Disease course	
- Monophasic	15/22
- Relapsing/Polyphasic	7/22

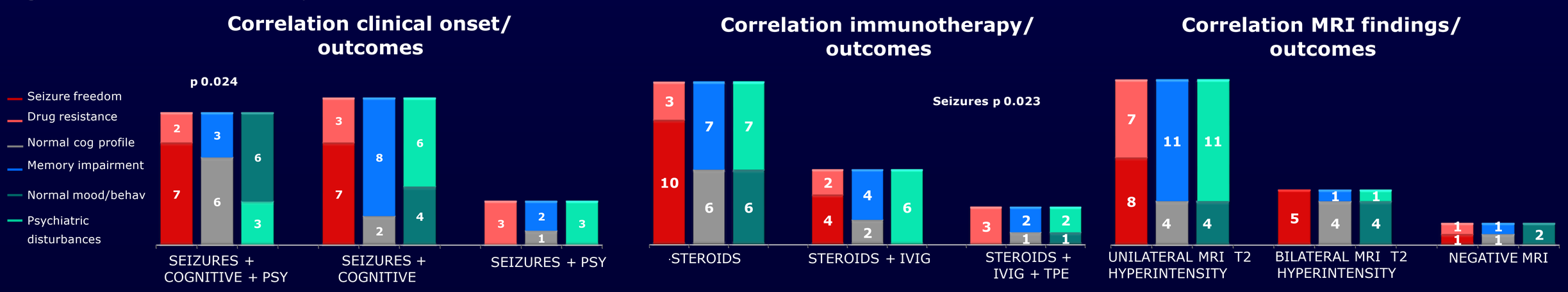
Legend:; NCPSE: Non Convulsive Partial Status Epilepticus; sGTCS: secondarily generalized tonic-clonic seizures;

Figure 2. *Exemplificative cases: brain MRI evolution over time.*



Results. 22 patients (13 M, mean age 63 ys) were included in the study. All presented seizures at onset (17 complex partial, 5 simple partial, 2 FBDS); in 14 cases seizures were recorded (left temporal lobe onset in 4, right in 1, bitemporal in 9). 19 subjects had memory deficits; 12 presented behavioural/mood disorders; 8 suffered from sleep disorders and in 7 hyponatremia was documented. 5 individuals reported recent infections and 4 had a history of tumor. In 10/22 patients autoantibodies were detected (3 anti-VGKC/LGI-1, 4 VGKC/CASPR-2; 1 anti-NMDAR, 1 anti-SOX-1, 1 anti-Ri/Hu). In 20 subjects brain MRI at onset showed alterations involving mesial temporal lobes (bilaterally in 15 cases). All patients received immunomodulating treatment (10 iv/po steroids alone, 6 steroids+IVIG, 2 steroids+IVIG+plasma exchange**).** At follow-up, 7/22 patients had drug-resistant epilepsy; memory deficits persisted in 13/22, psychiatric disturbances in 14/22 (Table 1 and Figure 2).

Figure 3. *Correlations between specific features and different outcomes.*



Discussion. Our work shows no significant differences in prognosis between "seronegative" and "seropositive" patients[2]. The bilateral involvement of mesial temporal structures is correlated with a worse outcome, especially in terms of memory/psychiatric disorders. Those patients with a definite "limbic syndrome" at onset achieve better seizure control, which may be partially explained by the prompt start of immunomodulation[3] (Figure 3).

Conclusions. Early recognition of LE and prompt immunomodulating therapy are of great importance to prevent the development of neurological sequelae, particularly cognitive impairment.

References:
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