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# MANAGEMENT OF STATUS EPILEPTICUS IN COMATOSE PATIENTS

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Status Epilepticus, emergency management, non-convulsive Status epilepticus, The EEG and MRI scan monitoring, Convulsive and non-Convulsive types of Status Epilepticus, many co-morbidities, 22 patients, Long-term EEG monitoring, EEG patterns in all cases, super-refractory NCSE, Bilateral periodic discharges, (BPDs), plasma exchange (PE).

## ABSTRACT

Among the patients with different types of Epilepsy, there is one of the most dangerous form named - Status Epilepticus, which needs emergency management. Without early response and correct treatment, patient's health condition may become critical up to death. The most difficult treatment of Status Epilepticus is in patients with unknown coma. Under our observation, there were 22 patients with different etiological factors of coma. For clinical observation we used EEG monitoring and MRI scan in dynamics. According the health history of patients, we find out that 9 of them had immunological and unknown disorders causing Status Epilepticus. In three cases, main disease progression was determined without any leader etiological factors, which might cause immunological disorders. In 7 cases, there were non-convulsive Status epilepticus. While all of these patients were under the general anesthesia, we were using anticonvulsive drugs in combination with immunotherapy and hormonotherapy. In two cases, we could not control Status Epilepticus. The EEG and MRI scan monitoring in dynamics shows us that difficulty in control of SE might be caused by exacerbation of the main disease. In conclusion, the acute disorders of central neuron system and early response of critical conditions are very important in correct and high quality management of both: Convulsive and non-Convulsive types of Status Epilepticus.

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**Introduction.** Nowadays there are many debates about development and management status epilepticus (SE) in patients with coma. It is especially difficult to treat SE in patients with unknown coma. It is impossible to ascertain final diagnosis in some cases, though we have used different studies. In general, the mortality of SE is about 20 %, but it might be more than 40 % in the elderly with acute symptomatic SE [1-5] and many co-morbidities [6].

Treatment of SE, especially of refractory or super-refractory stages, is almost an “evidence-free zone” [7]. Therefore, each clinical case is important and each clinical data must be discussed.

**Methods.** There were 22 patients with coma under our observation. All patients were divide in two clinical groups: Patients with different etiological factors (autoimmune, unknown) causing coma- 9 cases were included in the first group. We diagnosed non-convulsive status epilepticus (NCSE) in 4 cases from the first group. 13 patients with traumatic brain injury were included in the second group. In 3 cases of this group NCSE was found. The patients with oncological diseases and secondary brain damages was exclude.

All patient underwent the following studies:

1. Long-term EEG monitoring in dynamics
2. Brain CT or MRT in dynamics
3. Objective neurological status (by GCS)
4. Other basic clinical and Para clinical studies.

**Results.** In 3 cases of I group NCSE with refractory and super refractory developing was observed and in 2 cases of II group refractory SE was mentioned.

Table 1 shows EEG patterns in all cases of NCSE from both groups.

Table 1. Long-term EEG monitoring shows development NSCE in all cases in dynamic.

Number of patient	GCS	EEG patterns
2	4-6	Lateralized periodic discharges (LPDs)
2	4-5	Bilateral periodic discharges (BPDs)
3	3-4	Generalized periodic discharges (PDs)

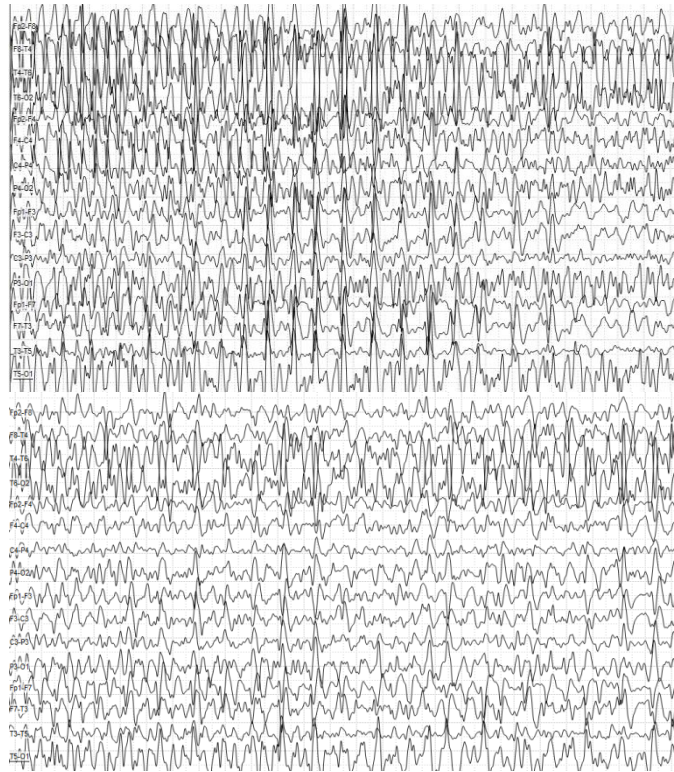


Fig. 1. Precious EEG data. Super-refractory SE.

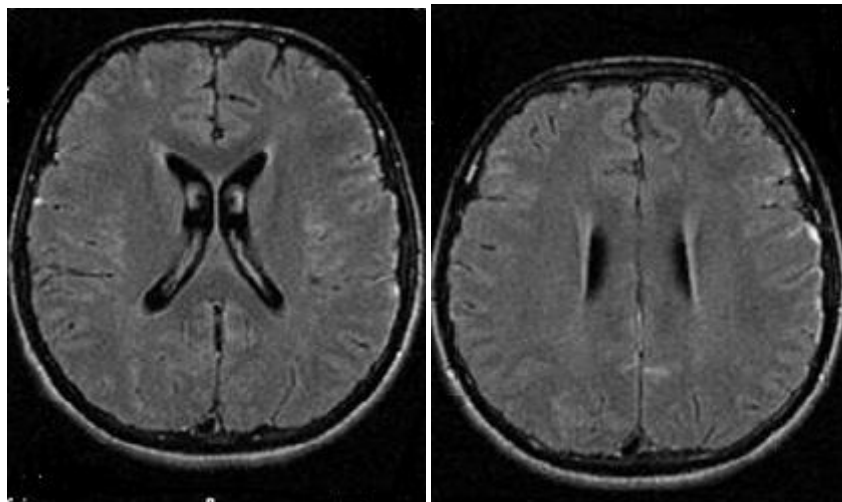


Fig. 2. MRI data of patients with autoimmune encephalitis.





Fig. 5. Patient with a refractory NCSE with Lateralized Periodic Discharges (LPDs).

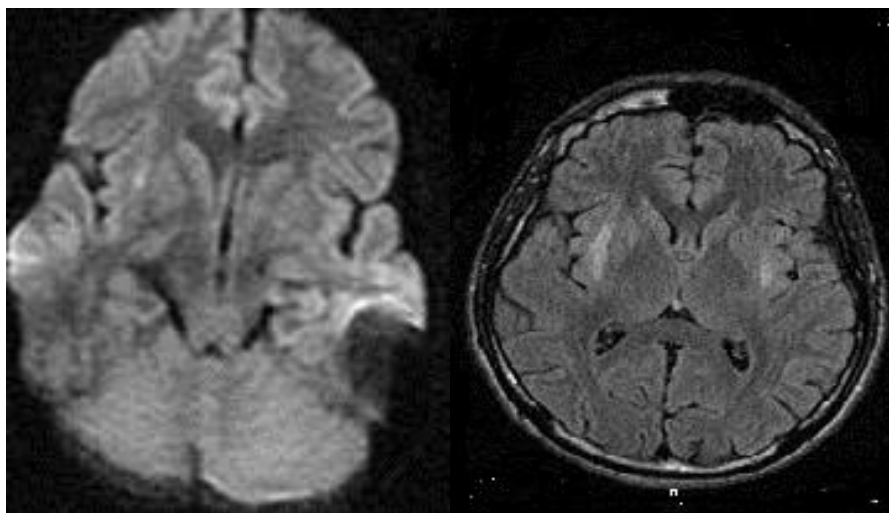


Fig. 6. MRI finding in this case.



Fig. 7. EEG changes in dynamics (without LPDs).

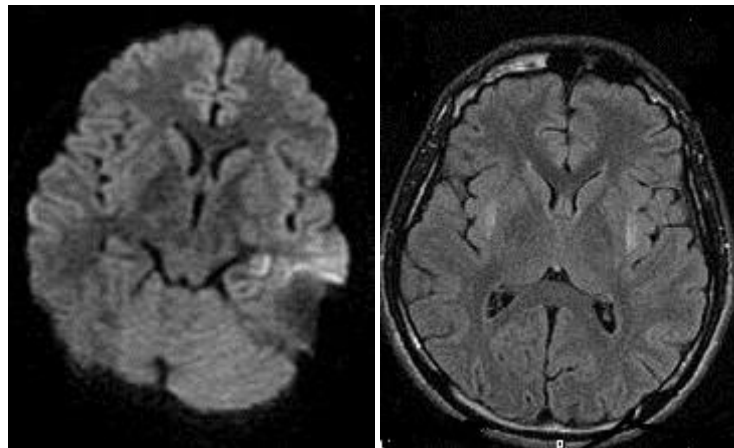


Fig. 8. MRI changes in dynamics.

For management of SE we have used treatment with Valproate Acid (VPA), Levetiracetam (LEV) and Carbamazepine (CBZ) in high doses.

Fig. 1. shows super-refractory SE EEG monitoring findings- Bilateral periodic discharges (BPDs).

Fig. 2. shows MRI finding in this case.

Fig. 4. shows super-refractory SE. In this case, we used VPA, LEV and CBZ together with intravenous Propofol infusion (4 mg/kg/day), pulse corticosteroid therapy with Methylprednisolone, Thiopental and Ketamine infusion –dosage 2.75 mg/kg. (3 days). Super refractory SE was continued. EEG monitoring shows generalized periodic discharges (PDs)-negative dynamics.

In additional we used plasma exchange (PE), intravenous immunoglobulin (IVIG). Regardless of all these EEG dynamics was negative and MRI study revealed negative radiological changes. We have got depressing of brain activity while used Thiopental infusion. We have received maximal depression of brain activity and full control under convulsion. Of course, we have positive MRI dynamics in development of main disease (Fig. 4).

All cases of refractory and super-refractory SE were hard to be managed and prevented from developing severe brain damages. Figures 5, 6, 7, 8 show EEG and MRI data dynamics of refractory NCSE.

**Conclusions.** Refractory and super refractory NCSE have severe clinical developments. It is difficult to manage each case and it needs treated individually.

Outcome of these cases depends on what is the cause of initial disease and its severeness.

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