CONVULSIVE SYNDROME MANIFESTATION IN PATIENTS WITH POSTANOXIC BRAIN INJURY COMA

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INTRODUCTION: Anoxic brain damage after cardiac arrest is one of the most common causes of coma worldwide. Only n Europe, approximately 176,000 patients are admitted, yearly. Of all comatose patients after cardiac arrest surviving to hospital admission, 40–66% never regain consciousness as a result of severe post anoxic encephalopathy (1.2). The various EEG patterns in coma correlate with degree of impairment of consciousness and depth of coma (3.4) and have been used for several decades to prognosticate the outcome of coma. However, the characteristic EEG patterns are not in all cases specific for the etiology of coma (5-7). The recent studies highlight the relevance of postanoxic brain damage and it's important to conduct more research on this topic, in order to correctly determine the management of patients' and their survival. Some authors concerned on the residual myoclonus after survival from the acute episode. EEG patterns are the most important parameters in the diagnosis, as well as the prognosis of coma stages. After cardiac arrest, the most common EEG patterns are suppression-burst patterns in association with seizures. There is some likelihood that, with greatly improved methods of recovery, there will be a significant rise in the number of electroencephalograms performed in patients with cerebral anoxia.

OBJECTIVES: The aim of our study is to signify convulsive syndrome in patients with postanoxic coma and to differentiate it from convulsive syndrome in patients with posttraumatic and other genesis comatose conditions, as well as management and prognosis of outcomes.

METHODS: We observed 69 patients (24 female, 45 male) aged from 20 to 72 years with coma caused by postanoxic and traumatic brain injury. These patients have been investigated over the period of time between 2012 and 2017 at Central University Clinic after Academic N.Kipshidze.

We have divided all patients in two separate clinical groups: 31 patients with post anoxic brain injuries and 38 patients with traumatic brain injury. All patients underwent following studies:

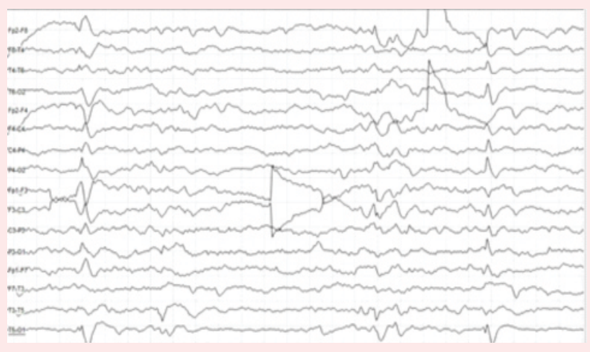
Neurological status assessment with GCS
Continue EEG-monitoring in dynamics
CT and MRI observation in dynamics

RESULTS: Different types of convulsion were observed in 9 patients out of 31 in the first group.
Table 1 shows different EEG patterns in postanoxic brain injury.

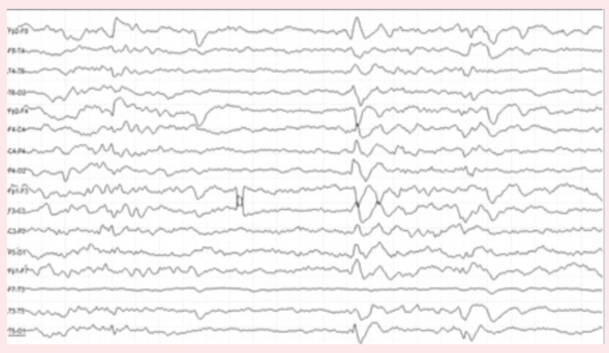
Number of patiens	GCS	Lateralized periodic discharges (LPDs)	Bilateral periodic discharges (BPDs)	Generalized periodic discharges (PDs)	suppression	Suppression Burst	Suppression-burst with identical burses
10	5-6	----	2	2	2	1	1
9	4-5	1	2	1	2	1	2
12	3-4	----	----	2	6	6	-

Table 1

Picture 1 and 2 show PDs in patient with postanoxic brain injury after cardiac arrest



Picture 1

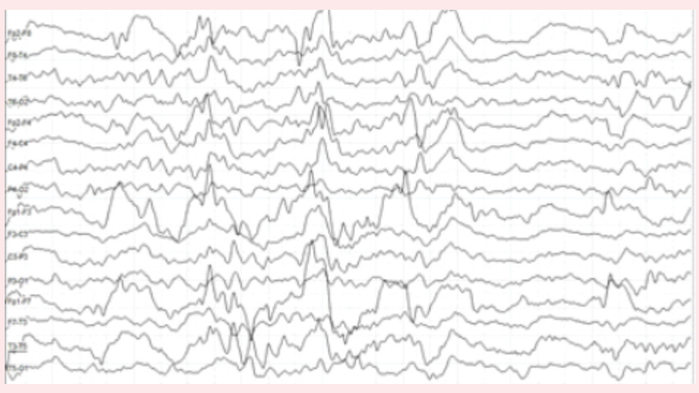


Picture 2

In 15 patients from the second group, we have found out different kinds of EEG patterns, which are the following: lateralized periodic discharges (LPDs) in 9 cases, bilateral periodic discharges (BPDs) in 4 cases and generalized periodic discharges (GPDs) in 2 cases.
All patients with convulsive syndrome underwent AED treatment.

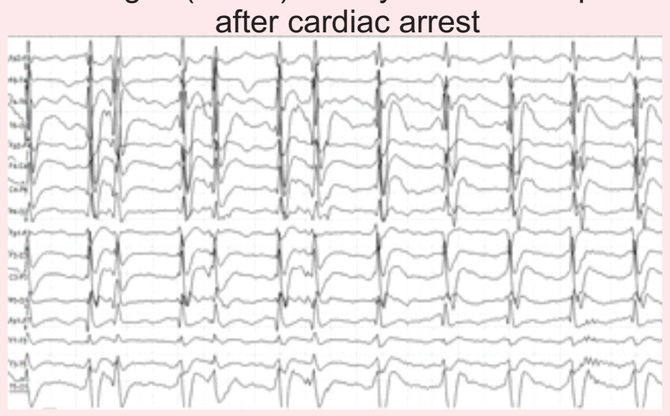
Pictures 3 and 4 show suppression-burst with identical burses in 57-year old male patient after cardiac arrest

Picture 3



Picture 4

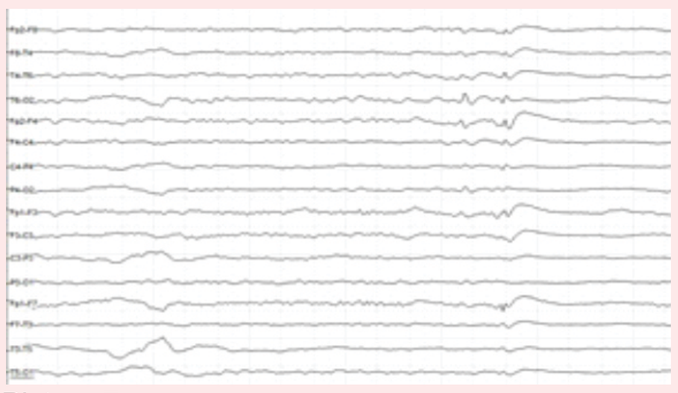
Pictures 5 and 6 show generalized periodic discharges (GPDs) in 61-year old male patient after cardiac arrest



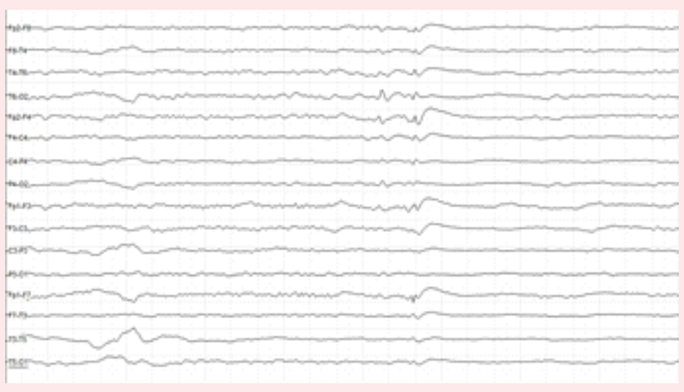
Picture 5

Picture 6

Pictures 7 and 8 show dynamic changes in EEG (suppression)

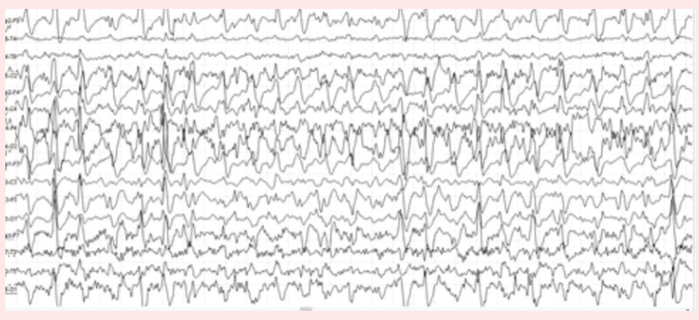


Picture 7



Picture 8

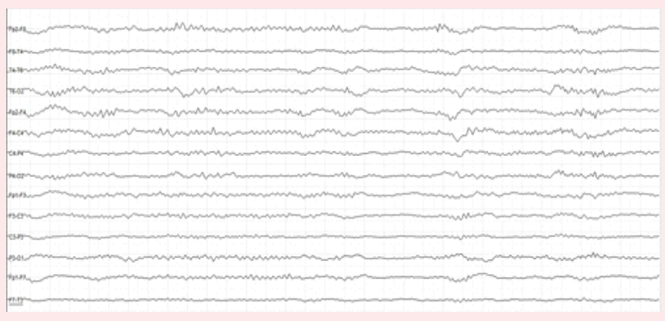
Pictures 9 and 10 show generalized period discharges (GPDs) in 69-year old female patient with anoxic brain injury



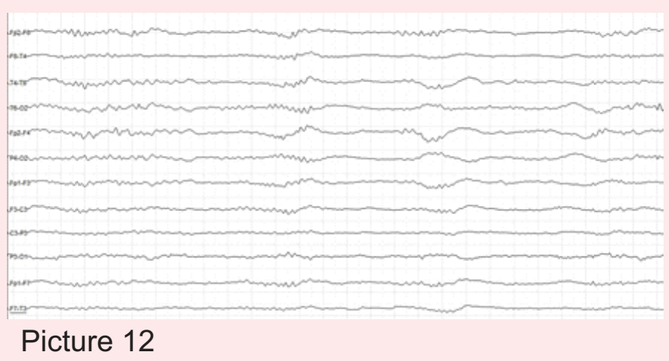
Picture 9

Picture 10

Pictures 11 and 12 show the same patient in dynamic EEG pattern (suppression burst activity)



Picture 11



Picture 12

DISCUSSION: According to our study, the comparison between the two patient groups show that the most harsh development is described in patients with post anoxic brain injury. In our perspective, despite the duration of anoxia, cortex damages can be considered as severe. Generalized periodic discharges (GPDs) are basically associated with severe brain injuries. The suppression burst syndrome (after GPDs) requires the accurate management for optimal positive dynamics.

CONCLUSIONS. Serial myoclonic and tonic-clonic generalized seizures most frequently are in patients with postanoxic coma. The quality of anoxic brain injury is directly correlated to severity of convulsive syndromes. Serial myioclonic and tonic-clonic convulsions are results of severe anoxic damages. Development of coma (by GSC) isn't directly correlated with types of convulsions. The types of convulsion depends on the time of anoxic injury.

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