

DEFAULT MODE NETWORK IN LEFT-SIDED TEMPORAL LOBE EPILEPSY PATIENTS WITH AND WITHOUT COMORBID AFFECTIVE DISORDERS

L. Shmeleva¹, A. Lebedev², M. Kissin¹

¹Psychiatry, Saint-Peterburg State I.Pavlov Medical University, Saint-Petersburg, Russia, ²Centre for Age-Related Medicine, Stavanger University Hospital, Stavanger, Norway

Affective disorders are common in patients with temporal lobe epilepsy, especially in cases of left-sided epileptic focus localization (IsTLE).

Aim: To characterize connectivity patterns of brain default mode network (DMN) in IsTLE patients with and without anxiety and depressive disorders.

Subjects and methods: 28 IsTLE patients, divided into two groups: patients with (“affective” group) and without anxiety-depressive symptoms. Beck Depression Inventory (BDI), Hospital Anxiety Depressive Scale (HADS), Hamilton Anxiety Scale (HAM-A) and Montgomery-Asberg Depressive Rating Scale (MADRS) were used to assess affective symptoms. All subjects underwent 9-min resting-state fMRI scanning session. Independent component analysis (ICA) was used to isolate DMN. The resulted maps were compared in groups using two-sample t-test. The results were considered as statistically significant according to threshold of $p < 0.005$ with a 10-voxel extent that has recently been shown to produce an optimal balance between Types I and II error rates in fMRI studies (Lieberman, 2009). The data were processed and analyzed using SPM8 and “GIFT” toolbox for ICA “GIFT”.

Results: Mild depression and moderate-severe anxiety levels were observed in the «affective» group.

Significantly increased functional connectivity was found in “affective” group in the right cerebellum (culmen), right gyrus fusiformis, dorsolateral prefrontal and midcingulate area, and in the left insula.

Conclusions: We found that brain DMN is altered by affective disorders associated with IsTLE. The observed regional pattern of difference can reflect the impaired levels of self-control often present in IsTLE patients with affective symptoms.