

THE OXIDATIVE STATUS OF EPILEPSY PATIENT WITH BRAIN LESION

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Excitable stimulation and oxidative stress were reported to be associated with the mitochondrial dysfunction in the hippocampus of epileptic patients. Our previous study showed the increased oxidative stress and decreased antioxidant activity in the epileptogenic loci with spike and in the hippocampus of epileptic patients. However, the oxidative status of the epileptic patients with different brain diseases, such as brain tumor or trauma, remains unknown. In this study, we investigated the oxidative status of epileptic patients with brain trauma- or tumor by using the indicators of oxidative stress (ROS, reactive oxygen species and MDA, malondialdehyde), antioxidant (vitamin C and B6), antioxidative activity (SOD, superoxide dismutase, GPx, glutathione peroxidase, CAT, catalase and GR, glutathione reductase) and mitochondrial functions (MMP, [Ca²⁺]_i and ATP level) and DNA integrity (chromatin structure assay). Epileptic patients with brain trauma or tumor all had higher levels of ROS and lower activity of SOD than those without trauma or tumor, respectively. This result indicated that brain lesion aggravated the oxidative status of epileptic patients, which may be attributed to the deficit of endogenous antioxidant systems leading to increased oxidative stress. This study suggested that brain lesion increased oxidative stress in patients with epilepsy and more antioxidant is needed for the epileptic patients with trauma or tumors to release the oxidative stress.