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Overweight and Obesity-polysemantic problem in young women with Epilepsy

Sofia Kasradze

Epilepsy Prevention and Control Centre, Georgia

More than half of adults are overweight or obese. Of particular concern for obesity are female adolescents and women of reproductive age for whom they can cause health problems for subsequent generations. Obesity is a common medical problem in people with epilepsy and for pediatric patients with untreated, newly diagnosed epilepsy because of co-morbidities such as type 2 diabetes, cardiovascular diseases, some type of cancer and reproductive-endocrine disorders, it significantly increases epilepsy health burden, mortality and morbidity and enhances its medical, psycho-social and economic problems. There are different points which explain the co-existence of epilepsy and weight gain. Some anticonvulsants have a significant iatrogenic effect of overweight; people with uncontrolled seizures tend to be less physically active and this can result in increased BMI. Obesity is more common in blacks than in whites, in the lower income, lower education and minority ethnic groups suffered epilepsy but not all people with epilepsy develop these effects and comparative data on these co-morbidities are limited. Epilepsy as well as overweight and obesity contribute negatively to the overall health and to health care costs, co-morbidity of this conditions significantly increase the burden of this medical conditions on health systems and society. So, preventing obesity in young women with epilepsy continuously improves cost-effectiveness of epilepsy care and quality of life of people with epilepsy.

sofiakas@gmail.com

The protective effects of Pura on rat hippocampus DNA damage induced by Epilepsy

Jianqi Cui, Qiang Liu, Juan Chai, Zheng Yang, Zuyao Song, Zhengquan He, Jianguo Niu, Feng Wang and Tao Sun

Ningxia Medical University, China

Objective: To investigate the protective effects of Pura protein on rat hippocampus DNA damage induced by epilepsy and the effects of Pura protein on DNA damage and repair.

Methods: The lentivirus overexpression and SiRNA constructs of Pura were packaged in vitro and the high titered virion was injected into rat hippocampus guided by stereotaxic apparatus. The experimental animals were divided into 4 groups: Control, overexpression, SiRNA and empty vector groups. The level of Pura expression and knock down were checked in the 14 days after the virion injection with fluorescent slides and western blotting to confirm that virus has already infected the hippocampus tissues. The Pilocarpine was used to induce epilepsy by abdominal injection. The experimental animals were executed 1 hour after the epileptic onset and the hippocampus samples were collected for immunohistochemical staining and western blotting assay to examine the pertinent protein expression to investigate the protective effects of Pura on DNA damage and repair.

Results: Pilocarpine can induce epileptic onset, immunohistochemistry demonstrated that γ H2AX, a landmark protein for DNA damage, has higher expression in CA1 region of rat hippocampus. The damage became aggravated when Pura protein has been knocked down but in Pura overexpression group, the damage became alleviated obviously. The results of western blotting illustrated that the proteins associated with DNA damage such as Parp-1, Ku80, XRCC4 has higher expression level when Pura was knocked down but on the other hand, these proteins have lower expression when Pura was overexpressed.

Conclusion: The DNA damage can occur in the early stage of epilepsy onset, Pura protein can protect the DNA damage caused by epilepsy and also participated in the repair process of DNA damage.

Jianqi@yahoo.com