عنوان مقاله:

Ameliorating optic pathway myelination in lyolecithin-induced focal demyelination model by oral Quercetin gavage in male wistar rats

محل انتشار:

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خلاصه مقاله:

Background and Objective: Multiple sclerosis as one of the most common neurodegenerative diseases affects lives of millions of people around the world. About 70% of patients experience visusal disturbance symptoms in early disease stages which varies from blurred vision to complete blindness. Quercetin, a bioflavonoid presenting in several fruits and vegetables possesses a wide range of pharmacological functions including anti-tumor, anti-oxidant and antiviral activities. Evaluating the effect of different therapies on myelin repair improvement, Lysolecithin (LPC)-induced focal demyelination model has been using as a common valuable model. In this study we tried to investigate effects of Quercetin administration on myelin repair and oligodendroglial activation and expression of myelin producing genes. Materials and Methods: Local demyelination was induced by administration of LPC (1%, 2 µL) into the rat optic chiasm. Rats were treated by daily oral gavage of Quercetin(25mg/kg, 50mg/kg, i.gi)or saline. To check the visual and optic pathways, Visual-evoked potential(VEP)recordings were performed on days 0 , 7 and 14 post lesions. Myelin specific staining and immunostaining against GFAP and Iba1 were also utilized for assessment of myelination and oligodendroglial activation respectively.Findings: Electrophysiological data indicated that Quercetin administration could significantly decrease the P1-N1 latency and increase the amplitude of VEPs waves comparing to the saline group. Luxol fast blue staining and immunostaining against PLP, as a mature myelin marker, demonstrated that myelin repair was improved in animals receiving Quercetin treatment. Besides, Quercetin effectively reduced expression of GFAP and Iba1 as activated glial markers in optic chiasm. Conclusion: The present study demonstarted that Quercetin administrartion enhances myelin repair and moderates glial activation in optic chiasm following local injection of LPC .

کلمات کلیدی:

Quercetin, Demyelination, Optic chiasm, Visual evoked potential, Glial activation, Remyelination