



The Effect of Curcumin on Cognitive Dysfunction Through Cholinergic Pathway in Hippocampus, Frontal Cortex and Caspase 3 in Rat Shohami's Weight-Drop Model Traumatic Brain Injury

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Abstract : TBI (traumatic brain injury) results in significant disability due to cognitive deficits mainly in attention, learning and memory and higher-order executive functions. In this study we examined the effect of curcumin on cognitive dysfunction through increase ACH and decrease caspase 3 expression in hippocampus and cortex. Twenty five anaesthetized Wistar rats were subjected to TBI using Shohami weight-drop model. The ACH and caspase 3 activity was determined using immunohistochemistry in brain tissue slices after 5 days treatment of curcumin at 3 different doses 50 mg/kg, 100 mg/kg, 200 mg/kg and examined cognitive function using MWM. Increase expression of ACH was observed in hippocampus and cortex of brain after administration of curcumin in TBI, also was observed decrease expression of caspase 3 and improvement of cognitive dysfunction. In addition to observation above we found that increase expression of ACH no significant difference between treatment group, while decrease expression of caspase 3 was significant with high dose, and leading to good outcome of cognitive dysfunction. From our result we suggest that after TBI administration of curcumin may improve cognitive dysfunction through mechanism involving increasing of expression of ACH and decreasing of expression of caspase 3 and therefore decreasing apoptosis.

Key words : Caspase 3, cholinergic, curcumin, TBI.

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