Neuroprotective effect of Neurokinin 1 receptor antagonist on CA1 region of hippocampus in male Wistar rats following ischemic / reperfusion induction

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Abstract
Cerebral ischemia/reperfusion (I/R) injury is a critical factor leading to a poor prognosis for ischemic stroke patients. Substance P-mediated inflammation is reported to attenuate the neuroprotective PPAR-γ. In this study, we determined the effects of aprepitant, a substance P-NK1 receptor antagonist in bilateral common carotid arteries occlusion (BCCAO) induced I/R brain injury. 24 male Wistar rats were divided into 4 groups (Control-Ischemia-Vehicle and experimental). Ischemia model was induced by ligation of bilateral common carotid arteries. Aprepitant (40mg/kg) was administered twice, one hour before the ischemia and one hour after the reperfusion. After 72 hours, Brains were removed and prepared for Nissl staining. Data depicted that significant differences were seen in the number of viable Pyramidal cells in CA1 region between control and ischemia groups whereas there are no significant deference between experimental and control groups. It may be concluded that aprepitant can reduce post-ischemic tissue lesions, so may candidate for the treatment of I/R brain damage.

Keywords: Apoptosis Aprepitant, Ischemia, Neuroprotective, Reperfusion.