

Expression of pAKT and iNOS by estrogen in hippocampal slices exposed to oxygen-glucose deprivation

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Estrogen has shown neuroprotective effects against ischemic insults using different models. Possible mechanisms of estrogen have been suggested, however, it is not clearly defined how estrogen works in the ischemic brain. This study was aimed to whether estrogen protects neurons against oxygen-glucose deprivation (OGD) in rat organotypic hippocampal slices and pAKT and iNOS expressions can be regulated by estrogen. 14 days after hippocampal slice culture, slices were exposed to OGD for 30 min and were changed with normal medium for 72h. Slices were treated with or without estrogen (1nM) for 7 days before OGD. Proidium iodide (PI) staining of CA1 area at 72 h was increased in OGD slices compared to control while estrogen pretreatment significantly reduced PI intensity in OGD slices ($p < 0.05$). The expression of pAKT was enhanced by estrogen in CA1 pyramidal layers at 24h. Estrogen also reduced iNOS expression enhanced by OGD only. These results suggest that estrogen protects neurons against OGD through the regulation of pAKT and iNOS expression.