

Effect of triflusal against oxygen and glucose deprivation in mice hippocampal slice cultures

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Triflusal (2-acetoxy-4-trifluoromethylbenzoic acid) is a non-steroid antiinflammatory drug (NSAID) with antiplatelet activity and structural similarity to acetylsalicylic acid. It inhibits prostaglandin synthesis and blocks the activation of the transcription factor NF κ B. Based on suggestions that NSAIDs could have a beneficial role in neuroinflammation, we evaluated the effect of Triflusal against Oxygen and Glucose Deprivation (OGD) in hippocampal brain slice cultures.

Hippocampal slice cultures from P-7 C57BL/6J mice and grown for 14 days *in vitro*, were subjected to OGD for 30 min. Other cultures, used as controls, were either not exposed to OGD or submersed in glucose-containing medium. Cultures were exposed to 100 μ M Triflusal by a)24 h pretreatment + during OGD + 24 h after OGD; b)24 h pretreatment + during OGD; c)during OGD + 24 h after OGD, and d)during OGD only, and cell death recorded as cellular uptake of propidium iodide (PI) from the medium. Twenty-four hours after OGD, the cultures were fixed and cryostat sectioned in 2 series at 20 μ m, of which one was stained immunocytochemically for NF κ B. PI pictures confirmed a significant OGD-induced PI uptake particularly in the CA1 pyramidal cell layer, amounting to 575.54 ± 46.89 arbitrary units (AU). Triflusal reduced this OGD-induced PI uptake in all applications, with maximal neuroprotection when present during the OGD period only (210.82 ± 23.9 AU). NF κ B was strongly upregulated in all hippocampal subfields after OGD. Triflusal inhibited this upregulation, and in accordance with the PI data, maximal reduction in NF κ B upregulation occurred in cultures exposed to Triflusal during OGD only.

We conclude that Triflusal is neuroprotective against OGD-induced neuronal cell death in mice hippocampal slice cultures. This effect most likely is exerted by reducing NF κ B upregulation, which confirms and extends previous results from excitotoxic *in vivo* studies.

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