EFFECT OF NOVEL KYNA DERIVATE ON CFA INDUCED INFLAMMATION IN RAT TRIGEMINAL GANGLION

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Introduction: Chronic migraine putatively involves inflammatory responses in the trigeminal ganglion (TG). The major route of tryptophan metabolism is the kynurenic pathway, having two neuroactive end products: kynurenic acid (KYNA) and qunolinic acid (QUINA). KYNA can poorly cross the blood-brain-barrier, therefore new analogues are synthetized. The purpose of our study was to present the effects of a KYNA analogue on a model of trigeminal activation induced by application of Complete Freund's Adjuvant (CFA) on rat dura mater.

Materials and methods: CFA was applied onto an exposed area of the dura mater for 20 minutes, washed away with saline, followed by the closure of the cranial window. KYNA analogue was administrated intraperitoneally. Animals were sacrifized, TG was processed for immunohistochemistry or Westenblot studies.

Results: CFA induced pERK1/2 and IL-1β activation in the TG. pERK immunoreactivity was found in satellite glial cells, whereas IL-1β immunopositivity was detected in the neuronal cytoplasm, close to the cell membrane, suggesting neuro-glial interaction. The activation was diminished in KYNA analogue treated animals. Pretreatment with one dose of KYNA derivate was enough to abolish pERK1/2 and IL-1β activation.

Conclusion: Our study opens a new line for further investigations regarding the novel KYNA derivate, representing a new therapeutic approach in the treatment of migraine chronification.

This work was supported by the project TÁMOP-4.2.2.A-11/1/KONV-2012-0052, by the Hungarian Brain Research Program (NAP, Grant No. KTIA_13_NAP-A-III/9.), by EUROHEADPAIN (FP7-Health 2013-Innovation; Grant No. 602633) and by the MTA-SZTE Neuroscience Research Group of the Hungarian Academy of Sciences and University of Szeged