EFFECT OF MORPHINE TREATMENT IN EARLY LIFE ON HIPPOCAMPAL CELL VIABILITY

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Introduction: infants are often exposed to opiates and this exposure can lead implications to developmental of nervous system. The effects of this treatment in early life on cell viability of CNS structures have not been studied. Objectives: evaluate the effect of neonate morphine exposure on susceptibility of hippocampal slices to cell damage induced by hydrogen peroxide (H_2O_2), as evaluated by cell viability. Materials and Methods: were utilized 8-day-old male Wistar rats which were divided into 2 groups: control (C, n = 16) and morphine (M, n = 15), which received saline or morphine (5 µg s.c. in the mid-scapular area) at postnatal day 8 (P8), once a day for 7 days. At P30 the rats were killed and hippocampus removed and sliced in *chopper*. These slices were pre-incubated with HEPES buffer for 1 h at 37°C. After, they were exposed to H_2O_2 (2 mM, 1 hour at 37°C). Cell viability was measured by reduction of bromide 3 - [4,5-DimethylTiazol-2-yl] -2,5-difeniltetrazólio (MTT) and by release of lactate dehydrogenase (LDH) using a kit (Doles). The data were analyzed by one-way ANOVA/SNK and expressed as mean+SEM. Differences were considered statistically significant if $P<0.05$. Results and Conclusions: The groups did not show differences in LDH and MTT when analyzed without insult with H_2O_2. However, the hippocampal slices of M group exposed to H_2O_2 showed a significant increase in LDH release ($F_{3,27} = 4,22$, ANOVA/SNK, $P<0.05$) and C and M group showed a decrease in mitochondrial activity ($F_{3,27} = 9,0$, ANOVA/SNK, $P<0.05$). This study demonstrates that early morphine exposure increase susceptibility to hippocampal cell damage induced by H_2O_2 after two weeks of the end of treatment.