**Mutagenic Effect of Phenylalanine In Vitro in Cerebral Cortex of Young Rats**

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**Introduction:** Phenylketonuria (PKU) is a genetic disease presenting high phenylalanine (Phe) concentrations in tissues and biological fluids of patients. Mental retardation is frequently observed in these patients, whose pathophysiology is unknown. **Aim:** In the present work we assessed the effect of high Phe concentrations on DNA damage in cerebral cortex of young rats. **Methods:** 30-day-old Wistar rats were killed by decapitation and the cerebral cortex was removed and sliced. The slices were incubated for 30 minutes in the presence or absence of increasing Phe concentrations (0.1 to 2.5 mM) and then the index and frequency of DNA damage were evaluated by comet assay. **Results:** Phe, at 1 mM and higher concentrations, elicited DNA damage in cerebral cortex, as demonstrated by the increase of both index and frequency of damage. **Conclusion:** The presented data demonstrated that Phe induces DNA damage in vitro. In case the present finding are confirmed by in vivo studies and also in human condition, they could explain, at least in part, the brain damage observed in PKU patients.

Word keys: phenylalanine, DNA damage, brain

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