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Short communication

Protective abilities of pyridoxine in experimental oxidative stress settings in vivo and in vitro

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ABSTRACT

Background: Pyridoxine (Pr, B6) or its active form pyridoxal phosphate (PLP, B6) deficiency promotes oxidative lipid peroxidation and exacerbates the oxidative stress. From the other hand, by our previous experiments we proved that B6 is able strongly inhibit Xanthine Oxidase (XO) activity, which is an enzyme responsible for the formation of uric acid and hydrogen peroxide.
Methods: Cells were cultured by Mattson M. method and treated with 3%% hydrogen peroxide. Before and after treatment we added allopurinol as well as B6 into the cell culture media. Hydrogen peroxide after limited craniotomy was injected into the brain parenchyma in accordance to the following coordinates from bregma: 2 mm lateral to midline, 3 mm anterior to the coronal suture, and 2 mm below the surface of the skull. Blood Brain Barrier (BBB) disruption was evaluated spectrophotometrically ($\lambda = 550$ nm).
Results: were evidencing – B6 as well as allourinol are protective against oxidative stress and support cells maintenance in the culture, protect them from death. In in vivo studies animals treated with pyridoxine and allopurnol from days 1–6 and 1–12 ($p < 0.035$) had less damaged BBB in comparison with the control group.
Conclusion: Antioxidative abilities via XO inhibition of B6 are proposed.