



Effect of taurine treatment on pro-oxidant-antioxidant balance in livers and brains of old rats

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Abstract:

The effect of taurine treatment on antioxidant defense in liver and brain tissues of old rats was investigated. Endogenous malondialdehyde (MDA) and diene conjugate (DC), ascorbic acid (AA)- and NADPH-induced lipid peroxide levels as well as non-enzymatic (glutathione – GSH, vitamin E and vitamin C) and enzymatic antioxidants (superoxide dismutase, glutathione peroxidase and glutathione transferase) were determined in livers and brains of young (5 months), old (22 months), and taurine-treated old rats. Taurine (2%, w/v; in drinking water) was administered to old rats for 6 weeks. Taurine levels decreased in the liver and brain of old rats compared to young rats. MDA and DC levels increased, GSH levels decreased, but induced lipid peroxidation remained unchanged in livers of aged rats. Oxidative stress parameters did not change in brains of aged rats. Taurine treatment resulted in significant increases in taurine levels, decreases in MDA and DC levels and increases in GSH levels in livers of old rats. Taurine treatment also increased brain taurine levels. However, no significant changes were detected in lipid peroxidation and antioxidant system in brains of old rats following taurine treatment. Accordingly, in old rats the liver seems more susceptible to age-related lipid peroxidation increases and taurine level changes than the brain. Thus, taurine supplementation seems to be useful for decreasing hepatic oxidative stress in aging.

Key words:

aging, taurine, lipid peroxidation, antioxidants, liver, brain, rats
