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Reduction of the Malondialdehide Levels in Liver and Brain of ICR Mice Exposed to Constant Light and Constant Dark by Application of Melatonin

Masha Bogoeva[1], *Milka Mileva*[2], *Margarita Mileva*[1], *Evgeni Gabev*[3]

Abstract: A comparative study on the 24-h mean levels of malondialdehyde (MDA) in liver and brain of ICR mice was conducted. The MDA levels were measured spectrophotometrically in liver and brain homogenates by thyobarbituric acid reaction. The ICR mice were exposed (4 weeks) to different lighting conditions: light-dark cycle 12:12 (LD12:12), constant light (LL) and constant dark (DD). During the last 7 days of the exposition to LL the half part of the experimental animals were treated every day at one and the same time with exogenous melatonin (Fluka, 700 mg/kg; i.p.). The same experimental approuch was applied to the mice exposed to DD, but melatonin 25 mg/kg was used. The obtained results showed that after 4 weeks constant light the MDA-levels in brain and liver of mice were increased with about 25% in comparison to mice kept in LD. There was not established similar effect with DD. The daily treatment of mice with melatonin reduced the MDA-levels in brain with about 30% and in liver up to 50%.

Key words: melatonin, malondialdehyde, LL, DD, ICR mice.