# Maternal administration of melatonin prevents spatial learning and memory deficits induced by developmental ethanol and lead co-exposure

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Melatonin is a radical scavenger with the ability to remove reactive oxidant species. There is report that coexposure to lead and ethanol during developmental stages induces learning and memory deficits and oxidative stress. Here, we studied the effect of melatonin, with strong antioxidant properties, on memory deficits induced by lead and ethanol co-exposure and oxidative stress in hippocampus. Pregnant rats in lead and ethanol coexposure group received lead acetate of 0.2% in distilled drinking water and ethanol (4 g/kg) by oral gavages once daily from the 5th day of gestation until weaning. Rats received 10 mg/kg melatonin by oral gavages. On postnatal days (PD) 30, rats trained with six trials per day for 6 consecutive days in the water maze. On day 37, a probe testwas done and oxidative stress markers in the hippocampuswere evaluated. Results demonstrated lead and ethanol co-exposed rats exhibited higher escape latency during training trials and reduced time spent in target quadrant, higher escape location latency in probe trial test and had significantly higher malondialdehyde (MDA) levels, significantly lower superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx) activities in the hippocampus. Melatonin treatment could improve memory deficits, antioxidants activity and reduced MDA levels in the hippocampus. We conclude, co-exposure to lead and ethanol impair memory and melatonin can prevent from it by oxidative stress modulation.

Biography: I am studying PhD at Shahid Beheshti Neuroscience Research Center. So far I have published two papers on physiology and behavior.

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