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Poster Presentation

The Beneficial Effect of Aminoguanidine on Lipopolysaccharide -Induced Memory Impairment and Neuro-Inflammation in Rats

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Abstract

Introduction: In the present study, the effect of an inducible NO synthase (iNOS) inhibitor, aminoguanidine (AG) on lipopolysaccharide (LPS)-induced memory impairment and oxidative stress and inflammation parameters was evaluated. **Materials and Methods:** The rats were divided into 5 groups and treated: 1) Control (Saline), 2) LPS (1 mg/kg), 3-5) AG 50, 100 and 150mg/kg 30 min before LPS injection. The treatment was started 5 weeks before the behavioral experiments and continued during the behavioral tests (LPS injection two h before each behavioral experiment). Finally, brain tissue was removed for biochemical measurements. **Results:** the escape latency in Morris water maze (MWM) test and the latency to enter the dark compartment in Passive avoidance (PA) test in LPS group were significantly higher than in control ($P<0.001$) whereas, in AG100-LPS and AG150-LPS groups they were shorter than LPS group ($P<0.001$). Malondialdehyde (MDA) concentration in the hippocampus of LPS group were higher than control group ($P<0.001$) while, in AG100- LPS and AG150-LPS groups it was lower than LPS group ($P<0.001$). The thiol content in the hippocampus of LPS group reduced compared to control group ($P<0.001$) while, in AG100 - LPS and AG150-LPS groups it enhanced compared to LPS ($P< 0.01$). **Conclusion:** It is suggested that LPS induced neuroinflammation, brain tissues oxidative damage and learning and memory impairments are preventable by aminoguanidine as an iNOS inhibitor.

Keywords: Learning, Memory, Lipopolysaccharide, Aminoguanidine

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