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Title: Impairment of social behavior in the initial stages of Alzheimer’s disease is caused by increased instinctive anxiety
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Abstract:

Introduction: Alzheimer's disease (AD) is a progressive neurodegenerative disease which results in cognitive impairment. **Objectives:** This study aimed to investigate the alterations of instinctive anxiety level and its effect on social learning in AD. **Methods:** AAlCl<sub>3</sub>-induced mouse model of AD was used which was developed in ten months old mice by intraperitoneally administering AAlCl<sub>3</sub>-induced (150mg/kg/day) for 14 days. **Results:** On day 14, treated mice were subjected to different behavioral tests including elevated plus maze (EPM), social novelty and tube dominance. Instinctive anxiety level and exploratory behavior was assessed using EPM. Time spent in closed arms by AD mice was significantly higher (97.53±0.83, n=10) compared to control mice (89.80±1.81, n=10) indicating increased instinctive anxiety (p=0.001). AD mice showed reduced exploratory activity (p=0.002) by showing less number of entries (3.00±0.83, n=10) into open arms compared to control (10.20±1.88, n=10). Social novelty test showed a significant deficit (p=0.0003) in preference for social novelty in AD mice (49.90±21.11, n=10) compared to control (188.10±22.67, n=10). AD mice showed impaired sociability during exposure to an unfamiliar conspecific (p=0.0019). Tube dominance test was performed to assess the aggressive tendencies and social dominance, however, no significant difference (p>0.05) in aggressive tendencies of AD mice (66.40±11.13, n=10) compared to control (53.00±10.18, n=10) was observed. **Conclusion:** These data showed that AlCl<sub>3</sub>-induced mouse model demonstrated, primarily, amygdala and hippocampus dependent cognitive impairment in the initial stages of AD, while sparing aggressiveness. Therefore, this model can be used for the drug testing and diagnostic studies in future.
Social behavior, learning, Alzheimer’s disease, amygdala

Presentation: Poster