

Count: 440

Abstract ID: 428

**subject:** Neural Injuries and Neurodegenerative Disorders: Neurotoxicity, Neuroprotection, Inflammation

**Presentation Type:** Poster

### Pain perception can dampen in the icv-STZ rat model of sporadic Alzheimer disease

**Submission Author:** Farzaneh Rostami

Farzaneh Rostami<sup>1</sup>, Zohreh Abbasi<sup>2</sup>, Masoud Fereidoni<sup>3</sup>

1. Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
2. Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran
3. Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran

**Background and Aim :** Age is known as the main risk factor of sporadic Alzheimer's disease (sAD). Pain management in AD is a critical health condition. However, behavioral display and verbal reports of pain could be dampened or exaggerated in AD patients. The icv-STZ (Intracerebroventricular streptozotocin injections) rat model of sAD has been foregrounded as a hopefully suitable model that could mimic some features of sporadic AD. However, there is no empirical research evaluating the long-term icv-STZ effect on rat behaviors post pain induction which is the aim of this investigation.

**Methods :** 84 adult male Wistar rats weighing 280-330 g (Department of Biology, University of Mashhad, Iran) were used in this study. Icv-STZ or its vehicle (saline) was administered into the right side of lateral ventricles of animals. Using formalin and tail-flick tests, we were seeking if icv-STZ injection (3mg/Kg) could affect neurogenic and inflammatory pain sensation along with the thermal threshold and edema volume of animals over time. Behavioral responses were observed at three testing times (1, 2.5, and 3-month post-injection).

**Results :** Differences were assessed using repeated measures ANOVA followed by the Bonferroni test. Icv-STZ could not induce any significant change in the early (neurogenic) phase of the formalin test over time. Formalin- induced animal's pain score dramatically decreased one-month post-injection and last even after the third month. On the other hand, STZ-treated animals had normal thermal thresholds and edema volume (inflammation) over time which is aligned with the results acquired from the formalin test.

**Conclusion :** Icv-STZ could impair brain pathways relaying inflammatory pain-related responses in male rats over time. AD-like pathology induced by icv-STZ could at least partially activate inflammatory pain processing pathways, a suggestion that needs more investigation. Upon the results of such studies, anti-inflammatory agents could be proposed to adjust pain perception in sAD patients.

**Keywords :** pain, formalin, tail-flick, icv-STZ, Alzheimer's, rat