

TO INVESTIGATE THE SYNERGISTIC AND SOLE ROLE OF DIFFERENT ANTIBIOTICS IN ICV-STZ INDUCED SPORADIC AD.

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Intra-cerebroventricular streptozotocin (ICV-STZ) microinjection mimics rat model of sporadic Alzheimer's disease. Sporadic AD is characterized by A $\beta$ , tau pathology and associated pathologies such as oxidative stress, neuro-inflammation, insulin resistance, neurotransmitter deficits and mitochondrial dysfunction. Current existing A $\beta$  targeting therapies only provide symptomatic relief and fail to halt disease progression. Thus repurposing existing drugs may provide better therapeutic and safer approach for targeting AD pathology. Antibiotics are well known to have anti AD effects and thus the current approach aimed to evaluate the neuroprotective effect of ceftriaxone alone and in combination with minocycline in ICV-STZ induced sporadic AD. The bilateral ICV-STZ induces sporadic Alzheimer's disease in experimental rats. The spatial and non-spatial memory was evaluated using the parameters including Morris Water Maze (MWM), and object recognition test (ORT). The ICV-STZ administration produced cognitive and memory deficits as indicated by a significant elevation in markers of oxidative stress and degenerative changes in the hippocampus and cortex regions of the brain as shown by biochemical and neurochemical estimation. The combination of ceftriaxone with minocycline treatment significantly attenuates the STZ induced decline in memory, oxidative stress, neurochemical levels and thus prevents damage to hippocampal and cortical brain regions via decreasing acetyl cholinesterase (AChE) activity and increasing endogenous anti-oxidant enzymatic activity. The observed outcomes of the present study suggest the synergized neuroprotective potential of the ceftriaxone with minocycline in cognitive and memory dysfunctions.