

9th World Congress on

BIOAVAILABILITY AND BIOEQUIVALENCE

April 16-18, 2018 Dubai, UAE

Epigenetic modulation in Alzheimer's disease: Study of class specific HDAC inhibitors in ameliorating insulin resistance induced Alzheimer's type of dementia**Rajeev Taliyan and Sorabh Sharma**

Birla Institute of Technology and Science Pilani, India

Background & Aim: Numerous epidemiological studies have demonstrated that insulin resistance contributes to Alzheimer's disease (AD) pathogenesis. However, the molecular mechanisms are still remain elusive but various studies have highlighted the epigenetic alterations and involvement of histone deacetylases (HDACs) in insulin resistance and cognitive deficits. In our previous study, we have explored the potential of pan HDAC inhibitor, SAHA, in high fat diet induced insulin resistance. In the present study, we have investigated the potential of isoform specific HDAC inhibitors in insulin resistance induced cognitive impairment in mice.

Methods: Mice were subjected to either normal pellet diet (NPD) or high fat diet (HFD) for 8 weeks. Serum insulin, glucose, triglycerides, total cholesterol and HDL-cholesterol levels were measured weekly. A battery of behavioral parameters was performed to assess cognitive functions. HFD fed mice were treated with Class I specific HDAC inhibitor, CI-994 or Class II specific HDAC inhibitor, MC-1568 once daily for 2 weeks.

Results: HFD fed mice exhibit characteristic features of insulin resistance, showed a severe deficit in learning and memory. HFD feeding results in significant increase in amyloid beta1-42 levels as compared with NPD fed mice. By contrast, the mice treated with MC-1568 showed significant improvement in insulin resistance condition, marked decrease in amyloid beta1-42 and significantly ameliorate the HFD induced decrease in BDNF and CREB level as compared to HFD group. Whereas, the mice treated with Class I HDAC inhibitor, CI-994 failed to show any improvement in insulin resistance and cognitive deficits.

Conclusion: Based upon these results, it could be suggested that Class II HDAC inhibitors exert better neuroprotective effects as compared to Class I HDAC inhibitors associated with insulin resistant condition.

Biography

Rajeev Taliyan is currently working as an Assistant Professor in the Department of Pharmacy, Birla Institute of Technology and Science Pilani, India. He has vast experience in the field of neuropharmacology, cardiovascular pharmacology and drug toxicology. He has been awarded with many prestigious awards at international and national level including, Prof. Manjeet Singh Gold Medal award at IPSCON-2015; PP Suryakumari Gold Medal Award at IPSCON-2014. He has been invited by several research and academic institutes for delivering guest lectures. He has published several papers in peer reviewed international and national journals and in conferences of international and national repute. He is a Life Member of Indian Pharmacological Society and Association of Pharmaceutical Teacher of India Society.

rajeev.taliyan@pilani.bits-pilani.ac.in

Notes: