ABSTRACT

Recently, there are reports that impaired insulin receptor signalling in brain may lead to the development of Alzheimer’s disease (AD). The present study was planned to evaluate the role of insulin in spatial learning and memory in models of dementia in rats. The animal models used were scopolamine and aluminium chloride-induced cognitive dysfunction. Further, the study also explored if there is an interaction between insulin signalling and glutamatergic signalling to reduce apoptosis and oxidative stress in the neuronal cells in vitro. Besides, the study also assessed the combined effect of two different pathophysiological mechanisms leading to dementia, viz., metabolic disorders and environmental toxins using high-fat diet and aluminium chloride. Based on research assumptions and the findings of the present study we concluded that Insulin together with glucose promotes memory or reverses the memory deficit associated with AD, developed due to various causes. The modes of action of the participating agents in the rationale combination were also explored.