8th World Medical Nanotechnology Congress & Expo

June 08-09, 2016   Dallas, USA

Rivastigmine loaded solid lipid nanoparticles: Formulation and *in vitro* characterization and antioxidant activity

N John Sushma
Sri Padmavati Women's University, India

Injectable biodegradable nanoparticles have an important potential application in the treatment of a variety of neurological disorders. Rivastigmine is an oral medication used to treat patients with Alzheimer's disease. It is a short acting cholinesterase inhibitor (ChEI) and blocks the action of acetylcholinesterase, the enzyme responsible for the destruction of acetylcholine. The purpose of the present study was to formulate and evaluate rivastigmine loaded solid lipid nanoparticles for sustained release. In the present study, rivastigmine loaded solid lipid nanoparticles were prepared using fish oil and flax seed oil by melting emulsification coupled with high shear homogenization technique. Variable drug/polymer ratios in nine different batches were taken to identify the suitable lipid ratios for better entrapment efficiency of the drug and also for sustained release of the drug. The prepared nanoparticles were evaluated by scanning electron microscopy (SEM), transmission electron microscopy (TEM), dynamic light scattering (DLS) and atomic force microscopy (AFM). The particle size of the SLNs was found to exponentially decrease with the increase in surfactant solution. Fourier Transform Infrared (FTIR) spectroscopy, X-ray Diffraction (XRD) and differential Scanning calorimetry (DSC) analysis revealed that there was no chemical interaction between the ingredients of SLNs. Further drug entrapment efficiency and *in vitro* release studies were carried out. Scanning electron microscopy results revealed that the nanoparticles were spherical in shape. *In vitro* release studies showed that rivastigmine loaded SLNs were capable of releasing the drug in a sustained manner. *In vitro* antioxidant activity of SLNs and different concentrations of rivastigmine alone was determined by reducing power assay and DPPH activity. The experimental results showed the suitability of SLNs as a potential carrier for providing sustained delivery of rivastigmine.

Biography

N John Sushma has completed PhD from Sri Venkateswara University, Tirupati, India. She is working as an Assistant Professor, Department of Biotechnology, Sri Padmavati Women's University, Tirupati. She has published 50 research articles in reputed journals. She has presented her research work in various international and national conferences. She has presented a paper in International Conference on "Prevention of Dementia" by Alzheimer's Association held at Washington DC, USA in 2007. She was awarded with Young Faculty award and National Environmentalist award. She is currently involved in the Nanobiotechnology, Biochemical Pharmacology and Herbal Drug Development against neurodegenerative disorders such as Alzheimer's disease.

johnsushma@gmail.com

Notes:

J Nanomed Nanotechnol
ISSN:2157-7439 JNMNT an open access journal

Medical Nanotechnology 2016
June 08-09, 2016

Volume 7, Issue 3 (Suppl)

Page 45