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Bioavailability enhancement techniques for BCS Class II and Class IV drugs

Bioavailability is the rate and extent (amount) of absorption of unchanged drug from its dosage form. It is one of the important parameter to achieve desired concentration of drug in systemic circulation for pharmacological response to be shown. A drug with poor bioavailability is one with poor aqueous solubility, slow dissolution rate in biological fluids, poor stability of dissolved drug at physiological pH, poor permeation through biomembrane, extensive presystemic metabolism. From BCS candidates, class II and class IV drugs have solubility and permeability problems because of which their bioavailability is poor. Poorly water soluble drugs often require high doses in order to reach therapeutic plasma concentrations after oral administration. Low aqueous solubility is the major problem encountered with formulation development of new chemical entities. Any drug to be absorbed must be present in the form of an aqueous solution at the site of absorption. This presentation focuses on the various techniques used for the improvement of the Bioavailability of BCS class II and class IV drugs including size reduction, solubilising excipients, colloidal drug delivery systems, pH adjustment, solid dispersion, complexation, cosolvency, micellar solubilisation, hydrotropy etc.

Biography

Jithan Venkata Aukunuru is presently a Professor and Principal at Mother Teresa College of Pharmacy (Affiliated to Osmania University), Hyderabad. Jithan is a recipient of several awards and medals in his entire academic career. His research interests include Novel Oral Delivery Technologies; Exploratory Pharmaceutics; IVIVC; Implants; Nanosuspensions; Microspheres; Proliposomes; Prodrugs; Colon Drug Delivery; Nanotechnology; Chronotherapeutics; Novel Transdermal Delivery Methods; Exploratory Pharmaceutics; Drug Metabolism; Pharmacology (Retinal and Liver Disorders); Solubility Enhancement. He was awarded Ph.D in 2002 from University of Nebraska Medical Sciences, USA, in Pharmaceutical Sciences. For his PhD, he worked on retinal delivery of small and macromolecules. He is a fellow of Association for Biotechnology & Pharmacy and an active member of APP, APTI, IPA and IPGA.

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