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Bioavailability enhancement of poorly water soluble drug amisulpride: Cylodextrin complexation & it's pharmacokinetic & pharmacodynamic evaluation

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The present study aims to enhance the solubility and oral bioavailability of poorly water soluble antipsychotic drug Amisulpride (AMS) through complexation with 2-hydroxypropyl β-cyclodextrin (HPβCD). It has slow and erratic absorption after oral administration. This present report describes the study of the phase solubility diagram, preparation of the inclusion complex using various methods, characterization of the physico-chemical properties of the complex, in-vitro study, and determination of the bioavailability of the complex after oral administration in rats. An AL-type phase solubility diagram indicated complex of AMS-HP-β-CD with the constant of complex formation of 13245 M^{-1} at 37°C. The complex formation was confirmed by DSC, IR, and X-ray diffraction.The extent of absorption of the complex was determined in rats and was compared with that of pure drug and market product. The peak plasma concentration of pure drug was 30.05 ± 1.3 ng/ml (C_{max}) at 60 ± 3 min, whereas with market product the value was 54.85 ± 1.2 ng/ml at 40 ± 1 min and with AMS-HPβCD IC was 79.01 ± 1.5 ng/ml. The AUC_{tot} of pure drug was 2980.34±3.6, market product was 7238.73±2.9 and of IC was 11871.1±2.8. Oral bioavailability of AMS was improved from 48% to 78%.

Biography

Jagruti Brijesh Prajapati has completed her M.Pharm at the age of 23 years from M.S.Universuty, Baroda, Gujarat, India. She is Assistant Professor at Ramanbhai patel College of Pharmacy, Charusat, Changa, Anand, Gujarat, India.