Preparation and In vitro Evaluation of Floating Microspheres of Gabapentin and Acyclovir

Abstract

A controlled drug delivery system with prolonged residence time in the stomach can be of great practical importance for drugs with an absorption window in the upper small intestine. Floating microspheres are specially gaining attention due to their wide applicability in the targeting of drugs to stomach. Gabapentin and acyclovir dosage forms could be designed to release the drug in the stomach at a rate providing the maximum amount of drug absorbable by the upper intestinal segment using the multiple-unit floating system to increase the gastric residence time (GRT) of the dosage forms. The purpose of the present study was preparation and in vitro evaluation of the floating microspheres of two drugs (gabapentin and acyclovir) as gastroretentive drug delivery systems. The floating microspheres of those drugs were prepared by the solvent evaporation methods (W/O/W double emulsification- solvent evaporation method, O/O and O/W single emulsion solvent evaporation) using polymers like ethyl cellulose, cellulose acetate, HPMC, HEC, PVP, PVA and chitosan. In addition, the gelation method was used for preparing alginate beads of gabapentin using combination of sodium alginate, HPMC and EC polymers.