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Isfahan University of Medical Sciences

Preparation and pharmaceutical evaluation of miconazole nitrate mucoadhesive film for vaginal candidiasis treatment

R. Bahri Najafi[1], Z. Maghrouri[2,*], M. Peikanpour[2],

[1]Department of Pharmaceutics, School of Pharmacy and Pharmaceutical Sciences, Isfahan, Iran
[2]Department of Pharmaceutics,School of pharmacy and Pharmaceutical Sciences,Isfahan,Iran

Background and Aims: The purpose of this study was to design and optimize bioadhesive vaginal films of miconazole nitrate that adhesive to the vaginal mucus and release drug for a prolonged period for more effective treatment against vaginal candidiasis.
Methods: Bioadhesive films contain 10 mg miconazole nitrate (per 2.3 × 1.6 cm2) have been formulated by solvent casting method using bioadhesive polymers such as different grade of HPMC, Chitosan, Eudragit and propylene glycol (PG) were used as solvent and plasticizer. The films were characterized for various physical, mechanical, and pharmaceutical properties.
Results: Thickness of the prepared films ranged from 71-185µm, and the film's weight ranged from 16-35mg. Optimum release behavior and acceptable pharmaceutical properties were exhibited by film containing HPMC k15M and propylene glycol as plasticizer.
Conclusions: Bioadhesive strength and in vitro release studies suggested that the prolonged release bioadhesive vaginal film formulation of miconazole nitrate is useful and effective dosage form for treating vaginal candidiasis.

Keywords: Vaginal candidiasis; Miconazole nitrate; Bioadhesive film