Abstract:

The purpose of this study was to develop pluronic-based in situ gelling formulations of metronidazole (MTZ) for treatment of bacterial vaginosis, aimed at prolonging the residence time, controlling drug release, enhancing efficacy, decreasing recurrence, and increasing patient compliance. The in situ gel formulations were prepared using different concentrations of pluronic F-127 (PF-127) alone and in combination with pluronic F-68 (PF-68). The prepared formulations were evaluated for their gelation temperature (Tgel), in vitro drug release, rheological properties, mucoadhesion properties and tolerability by vaginal mucosa in tissue levels. The Tgel decreased with increasing PF-127 concentration. The Tgel was modulated by addition of PF-68 to be within the acceptable range of 25-37°C. With increasing pluronic concentration, the in-vitro drug release decreased, viscosity and mucoadhesive force increased. Histopathological examination of rabbit vaginas from the control and treated groups revealed normal histology of the vagina and cervix. Based on the in-vitro evaluation of prepared formulations, the in situ gelling liquid formulated with PF-127/PF-68 (20/10 %, m/m) was selected for further clinical evaluation.

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