Formulasi, Karakterisasi, Uji in Vitro dan Uji in Vivo Gel Transfersom Mengandung Medroksiprogesteron Asetat = Formulation, Characterization, in Vitro Study and in Vivo Study of Transferosomal Gel containing Medroxyprogesterone Acetate.

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Abstrak

ABSTRAK
Medroksiprogesteron asetat merupakan progestin sintetik yang digunakan sebagai kontrasepsi hormonal jangka panjang. Tujuan dari penelitian ini adalah meningkatkan penetrasi subkutan dari medroksiprogesteron asetat. Pada penelitian ini telah dilakukan optimasi formula transfersom yaitu F1, F2 dan F3 dengan perbandingan fosfatidilkolin : Tween 80 berturut-turut adalah 90:10; 85:15; dan 75:25. Hasil karakterisasi menunjukkan F2 adalah formula terbaik dengan efisiensi penjerapan 81,20 ± 0,42 %, Zaverage 81,35 ±0,78 nm, indeks polidispersitas 0,198 ± 0,012 dan potensial zeta -34,83±0,64 mVsehingga digunakan pada formulasi sediaan gel. Sediaan gel yang dibuat terdiri dari dua formula, yaitu gel transfersom (FGT) dan gel non transfersom (FG). Terhadap kedua gel tersebut dilakukan uji penetrasi in vitro menggunakan sel difusi Franz dan uji in vivo pada tikus betina Sprague Dawley. Hasil uji penetrasi in vitro menunjukkan jumlah kumulatif medroksiprogesteron asetat terpenetrasi dari FGT lebih tinggi daripada FG selama 24 jam, dengan nilai fluks untuk FGT dan FG masing-masing adalah 112,77 ± 6,47 ng.cm-2.jam-1 dan 17,99 ± 4,81 ng.cm-2.jam-1. Pada uji in vivo, medroksiprogesteron asetat dalam sediaan FGT memberikan hasil area under the curve (AUC) yang lebih tinggi dari pada dalam sediaan FG.
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ABSTRACT
Medroxyprogesterone acetate is a synthetic progestin which is used as long-acting hormonal contraceptive. The aim of this research was to increase subcutaneous penetration of medroxyprogesterone acetate. In this research three transferosomes formulas were prepared and optimized,e.g.F1,F2 and F3 with posphatidylcoline : tween 80 concentration were 90:10; 85:15; and 75:25, respectively. F2 was the best formula with highest entrapment eficiency 81.20 ± 0.42 %, Zaverage 81.35 ±0.78 nm, indeks polidispersity 0.198±0.012 and zeta potensial was -34.83±0.64 mV, so it was incorporated into gel dosage form. There were two gels prepared, transferosomal (FGT) and non transferosomal gel (FG). Both of them were evaluated, in vitro penetration test using Franz Diffusion cells and in vivo study in Sprague Dawley female rats were also conducted to each dosage forms. According to in vitro penetration study, cummulative penetration of medroxyprogesterone acetate from FGT was higher than FG, which flux value for FGT and FG were 112.77 ± 6,47 ng.cm-2.hr-1 and 17.99 ± 4.81 ng.cm-2.hr-1, respectively. The result of in vivo study showed that medroxyprogesterone acetate in FGT dosage form had higher area under the curve of medroxyprogesterone acetate than in FGdosage form.