PERBANDINGAN PROFIL FARMAKOKINETIKA SEDIAAN SOLID LIPID NANOPARTIKEL KURKUMIN DENGAN SUSPENSI KURKUMIN PADA TIKUS WISTAR JANTAN

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INTISARI

Solid Lipid Nano (SLN) dapat menjadi solusi dari masalah kurkumin karena memiliki kelebihan yaitu perilisan obat yang dikendali dan meningkatkan ketersediaan hayati. Tujuan penelitian ini yaitu membandingkan sediaan yang lebih baik antara solid lipid nano kurkumin dan suspensi kurkumin berdasarkan parameter absorpsi, distribusi dan eliminasi. Uji pendahuluan dilakukan dengan validasi metode kurkumin dalam plasma darah dianalisa dengan *High-Performance Liquid Chromatography* (HPLC), optimasi waktu sampling dan penetapan dosis. Penelitian ini menggunakan hewan uji yang dibagi dalam 2 kelompok yaitu kelompok perlakuan dan kelompok kontrol. Kelompok kontrol diberikan suspensi kurkumin dengan dosis 500 mg/kgBB secara per oral. Kelompok perlakuan diberikan SLN kurkumin dengan dosis 500 mg/kgBB per oral. Cuplikan darah diambil dari vena ekor tikus pada 0,083 (5 menit); 0,25; 0,5; 0,75; 1; 1,5; 2; 4; 6 jam. Analisis nilai parameter farmakokinetik menggunakan *software pK Function* dengan asumsi model non- kompartemen. Profil farmakokinetika SLN kurkumin dibandingkan suspensi kurkumin terjadi peningkatan pada parameter absorpsi Cmax sebesar 2,922±0,19 µg/ml dengan persentase kenaikan 215,3 % dan parameter eliminasi k sebesar 0,252±0,0334 /jam dengan persentase kenaikan 184,69%. SLN kurkumin pada parameter eliminasi $t_{1/2}$ mengalami penurunan dibandingkan suspensi kurkumin sebesar 2,778±0,388 jam dengan persentase penurunan 46,17%, dan SLN kurkumin pada parameter distribusi Vd sebesar 66.640,843±15.883,741 ml dengan persentase penurunan 39,42% dibandingkan suspensi kurkumin. Hasil yang diperoleh menunjukkan adanya pengaruh SLN kurkumin meningkatkan parameter yang mewakili fase absorpsi, distribusi, dan eliminasi dibandingkan suspensi kurkumin.

Kata kunci: Farmakokinetik, HPLC, Kurkumin, Solid Lipid Nanopartikel

COMPARATIVE PROFILE OF PHARMACOKINETICS SOLID LIPID NANOPARTICLES CURCUMIN WITH CURCUMIN SUSPENSION IN MALE RATS

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ABSTRACT

Solid Lipid Nano (SLN) can be a solution to the problem of curcumin because it has the advantage of releasing controlled drugs and increasing biological levels. The purpose of this study was to compare better preparations between curcumin nano solid lipids and curcumin suspensions based on absorption, distribution and elimination parameters. Preliminary tests were carried out by validating the curcumin method in plasma using High-Performance Liquid Chromatography (HPLC), optimization of sampling time and dose determination. This study used a trial which was divided into 2 groups, namely the treatment group and the control group. The control group was given curcumin suspension at a dose of 500 mg / kgBB orally. The treatment group was given SLN curcumin at a dose of 500 mg/kgBB orally. Sample error taken from mouse tail vein at 0,083 (5 minutes); 0,25; 0,5; 0,75; 1; 1,5; 2; 4; 6 hours. Analysis of the value of pharmacokinetic parameters using pK function software assuming a non-compartment model. The pharmacokinetic profile of SLN curcumin compared to curcumin suspension occurred at Cmax absorption parameters of 2,922±0,19 μg/ml with an increasing percentage of 215,3% and elimination parameters k of 0,252±0,0334 /hours with an increasing percentage of 184,69%. SLN curcumin on elimination parameters half- life ($t_{1/2}$) decreased curcumin suspension by 2,778±0,388 hours with a percentage decrease of 46,17%, and SLN curcumin in the Vd distribution parameters of 66.640,843 ± 15.8883,741 ml with a decreasing percentage of 39,42% compared to curcumin suspension. The results obtained from the effect of SLN curcumin increase the parameters that represent absorption, distribution, and elimination phases compared to curcumin suspension.

Keywords: Pharmacokinetics, HPLC, Curcumin, Solid Lipid Nanoparticles