Profil farmakokinetik kurkumin dan nanokurkumin di plasma dan distribusinya di ovarium tikus = Curcumin and nanocurcumin plasma pharmacokinetic profiles and their distribution in rat ovaries / Wenny Trias Ramadanty

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Abstrak

ABSTRAK
Latar belakang.:Kurkumin merupakan senyawa polifenolik yang memiliki aktivitas farmakalogi, sebagai antikanker, seperti pada kanker ovarium. Kurkumin memiliki bioavaibilitas rendah karena tidak terabsorpsi baik dan mengalami metabolisme tinggi. Ukuran partikel merupakan salah satu faktor yang dapat mempengaruhi proses absorpsi dimana memperkecil ukuran partikel dapat meningkatkan kelarutan suatu senyawa dan transpor melintasi membran. Tujuan penelitian ini adalah untuk mengetahui modifikasi ukuran partikel pada profil farmakokinetik kurkumin dalam darah dan pada organ ovarium.Metode : Penelitian dilakukan pada tikus betina Sprague Dawley yang diberi kurkumin dan nanokurkumin sebesar 500 mg/kgBB secara oral. Darah diambil dari vena ekor pada menit ke 10, 15, 30, 45, 75, dan 120 menit, dan organ ovarium diambil pada menit ke 120 dan 180. Analisis kadar kurkumin pada plasma dan ovarium menggunakan UPLC-MS/MS serta dilakukan analisis parameter famakokinetik.Hasil penelitian : Kurkumin pada kelompok kurkumin dan nanokurkumin terdeteksi dan terukur dalam plasma dan organ ovarium. Secara keseluruhan tidak terdapat perbedaan bermakna secara statistik antara kelompok kurkumin dan kelompok nanokurkumin dalam parameter farmakokinetik di plasma maupun ovarium. Namun, kadar di organ ovarium pada kelompok nanokurkumin lebih tinggi 1,3 kali dan 3,6 kali dibandingkan kelompok kurkumin pada menit ke 120 dan ke 180.Kesimpulan : Penurunan ukuran partikel kurkumin tidak meningkatkan kadar obat dalam plasma tetapi meningkatkan distribusi kurkumin dalam organ ovarium.
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ABSTRACT
Background Curcumin is a polyphenolic compound that has pharmacological activity, as an anticancer, such as in ovarian cancer. Curcumi has low bioavailability because it is not well absorbed and has high metabolism. Particle size is one factor that can affect the absorption process, minimizing particle size can increase the solubility of a compound and transport across the membrane. The purpose of this study was to determine the modification of particle size in pharmacokinetic profile of curcumin in blood and ovarian organs.Method The study was conducted on Sprague Dawley female mice given curcumin and nanocurcumin of 500 mg kgBW orally. Blood was taken from the vein of the tail at 10, 15, 30, 45, 75, and 120 minutes, and the ovarian organs were taken at 120 and 180 minutes. Curcumin levels in plasma and ovaries analyzed using UPLC MS MS and also pharmacokinetic parameter.Result Curcumin were detectable and measurable in plasma and ovarian organs curcumin and nanocurcumin groups. Overall there were no statistically significant difference of pharmacokinetic parameters between curcumin and nanocurcumin groups in both plasma and ovaries. However, levels of curcumin in ovarian organs at nanocurcumin group were 1.3 and 3.6 times higher than curcumin at 120 and 180 minutes.Conclusion Particle size reduction of curcumin did not increase the amount of curcumin in the plasma but increases the distribution of curcumin

in ovarian organs.