Pengaruh nanokurkumin terhadap hepatotoksisitas cisplatin pada kanker ovarium tikus ditinjau dari TNF- dan TGF-1 = Effects of nanocurcumin on cisplatin-induced hepatotoxicity in rat ovarian cancer in terms of TNF- and TGF-1

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Abstrak

Latar belakang: Cisplatin merupakan pilihan utama terapi kanker ovarium saat ini, namun memiliki efek samping diantaranya adalah hepatotoksisitas. Salah satu patofisiologi hepatotoksisitas ini adalah melalui jalur inflamasi dan fibrosis. Kurkumin merupakan senyawa yang memiliki efek antiinflamasi dan antifibrosis, namun memiliki bioavailabilitas yang rendah. Pemberian nanopartikel kurkumin diteliti dapat meningkatkan bioavailabilitas kurkumin dalam tubuh.
Tujuan: Penelitian ini bertujuan untuk mengetahui pengaruh nanokurkumin pada hepatotoksisitas akibat cisplatin, ditinjau dari kadar TNF- dan TGF-1 pada jaringan hati.
Metode: Penelitian in vivo dilakukan pada tikus betina galur Wistar yang dibagi menjadi 5 kelompok perlakuan (1 kelompok normal/sham, dan 4 kelompok diinduksi DMBA untuk mendapatkan model kanker ovarium). Tikus model kanker ovarium diberikan perbedaan perlakuan lagi yaitu satu kelompok tidak diterapi, satu kelompok diterapi cisplatin 4 mg/kgBB secara intraperitoneal, satu kelompok diterapi cisplatin dan kurkumin konvensional 100 mg/kgBB oral, dan satu kelompok diterapi cisplatin dan nanopartikel kurkumin 100 mg/kgBB per oral. Setelah satu bulan pemberian terapi, tikus dikorbankan dan disimpan beku organ hatinya. Pengukuran kadar TNF- dan TGF-1 jaringan hati dilakukan dengan metode ELISA.
Hasil: Tidak terdapat perbedaan yang signifikan antar kelompok perlakuan pada kadar TNF- (p=0.675), dan tidak terdapat perbedaan yang signifikan antara kelompok terapi kurkumin dan nanokurkumin pada kadar TGF-1 (p=0.992). Simpulan: Pemberian nanokurkumin tidak memengaruhi kadar TNF- dan TGF-1 di jaringan hati tikus model kanker ovarium yang mendapat terapi cisplatin.
.....Introduction: Cisplatin is currently the main choice for ovarian cancer therapy, but it has side effects including hepatotoxicity. One of the pathophysiology of cisplatin-induced hepatotoxicity is through inflammation and fibrosis. Curcumin is a compound that has anti-inflammatory and antifibrosis effects, but has a low bioavailability. The administration of curcumin nanoparticles under study can increase the bioavailability of curcumin in the body. Goals: This study aims to determine the effect of nanocurcumin on cisplatin-induced hepatotoxicity, in terms of levels of TNF- and TGF-1 in liver tissue.
Methods: In vivo research was carried out on female Wistar rats divided into 5 treatment groups (1 normal/sham group, and 4 groups induced by DMBA to obtain ovarian cancer models). The ovarian cancer model mice were further classified where one group got no treatment, one group treated with cisplatin 4 mg/kgBW intraperitoneally, one group was treated with cisplatin and conventional curcumin 100 mg/kgBW orally, and one group was treated with cisplatin and curcumin nanoparticles 100 mg/kgBW orally. After one month of therapy, the mice were sacrificed and kept their liver frozen. The measurement of TNF- and TGF-1 levels in liver tissue was carried out by the ELISA method.
Results: There was no significant difference between treatment groups in TNF- levels (p = 0.675), and there was no significant difference between the curcumin and nanocurcumin therapy groups in TGF-1 levels (p =

0.992).
Concluson: Nanocurcumin therapy did not affect TNF- and TGF-1 level in liver tissue in ovarian cancer model mice receiving cisplatin therapy.