Efek Kurkumin Sebagai Ko-Kemoterapi Cisplatin terhadap Ekspresi Reseptor Endothelin A (ETAR) dan Gambaran Histopatologi pada Ginjal Tikus Model Kanker Ovarium = Effects of Curcumin as Cisplatin Co-Chemotherapy upon The Expression of Endothelin Receptor A (ETAR) and Histopathological Appearance in Rat's Kidney with Ovarian Cancer

Leo Alfath Araysi, author

Abstrak

Latar belakang: Kanker ovarium diduga dapat menyebabkan penurunan fungsi dan kerusakan ginjal. Cisplatin salah satu terapi kanker ovarium bersifat nefrotoksik. Kerusakan ginjal ini terjadi melalui berbagai mekanisme, salah satunya adalah peningkatan ekspresi ETAR. Kurkumin diduga mampu menurunkan ekspresi ETAR pada jaringan ginjal yang rusak. Penelitian ini bertujuan untuk mengetahui efek ko-kemoterapi kurkumin pada cisplatin terhadap ekspresi ETAR serta gambaran histopatologi jaringan ginjal pada tikus model kanker ovarium. Metode: 24 tikus wistar betina dibagi menjadi empat kelompok: Kelompok normal sham (N), kanker ovarium tanpa perlakuan (Ca), kanker ovarium yang mendapat 4 mg/KgBB cisplatin (Cis), dan kanker ovarium yang mendapat 4 mg/KgBB cisplatin +100 mg/KgBB kurkumin (Cis+Cur). Setelah 3 minggu tikus dikorbankan, ginjal tikus diambil untuk pengamatan histopatolgi serta ekspresi mRNA ETAR. Hasil: Pada pengamatan histopatologi Masson Trichrome ditemukan fokus fibrosis pada kelompok tikus Ca dan Cis. Melalui qRT-PCR diketahui bahwa ekspresi mRNA pada kelompok Ca dan Cis relatif sama, namun meningkat masing-masing sebesar 133% (2,33 kali lipat) dan 123% (2,23 kali lipat) dibandingkan dengan kelompok normal. Sedangkan pada kelompok Cis+Cur terdapat penurunan ekspresi mRNA sebesar 31,5% (0.315 lebih rendah) dan 34,4% (0.344 lebih rendah) berurutan dibanding kelompok Cis dan Cur. Tidak ditemukan perbedaan bermakna secara statistik antar kelompok uji. Kesimpulan: Kanker ovarium dapat memicu kerusakan ginjal pada tiku dibuktikan dengan peningkatan ekspresi mRNA ETAR dan fokus fibrosis. Pemberian cisplatin pada dosis terapeutik tidak meningkatkan ekspresi mRNA ETAR pada jaringan tikus model kanker ovarium, meski demikian pemberian kurkumin sebagai ko-kemoterapi menurunkan ekspresi mRNA ETAR dan fokus fibrosis meskipun tidak bermakna secara statistik.

.....Background: Ovarian cancer is believed can lead to renal functional deterioration Furthermore, cisplatin as chemotherapeutic agent has nephrotoxic effects. Increased expression of the Endothelin A receptor (ETAR) is thought to be one of the mechanisms. Curcumin is believed to have protective effects in injured kidney. This study is to evaluate the co-chemotherapy effects of curcumin for cisplatin upon ETAR expression and histopathological appearances in rats' kidney. Method: Total of 24 wistar rats, devided into four treatment groups: normal group (N), ovarian cancer without treatment group (Ca), ovarian cancer which received cisplatin 4 mg/kgBW group (Cis), and ovarian cancer which received cisplatin 4 mg/kgBW + 100 mg/kgBW curcumin group (Cis+Cur). Kidney tissue specimen was obtained for histopathological examination and ETAR messenger ribonucleic acid (mRNA) expression. Results: Fibrosis foci were found at kidney tissue of Ca and Cis group. The mRNA expression level among Ca and Cis group were relatively equivalent; however increased by 133% (2,33 fold) and by 123% (2,23 fold), respectively compared to N

group. Meanwhile, the Cis + Cur group decreased by 31.5% (0.315 lower) and 34.4 % (0.344 lower) compared to Cis and Ca group respectively. There are no statistical significant among the experiment groups. Conclusion: Ovarian cancer is associated with kidney injury, demonstrated by increased of ETAR mRNA and fibrosis foci formation. Therapeutic dose cisplatin do not increased ETAR mRNA in the kidney of ovarian cancer rat. Curcumin administration as co-chemotherapeutic agent result in the decrease of ETAR mRNA level and the decrease of fibrosis foci formation.