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Efek kombinasi kurkumin dengan cisplatin pada model tikus kanker ovarium yang diinduksi DMBA (7,12-dimethilbenz(a)anthracene) melalui jalur aktivasi receptor endothelin = The combination effect of curcumin and cisplatin in a mouse model of DMBA (7,12-dimethylbenz(a)anthracene) induced ovarian cancer via the endothelin receptor activation pathway

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Abstrak

Latar belakang: Terdapat peningkatan 80% ekspresi reseptor endothelin A dan 40% ekspresi endothelin B pada kanker ovarium. Peningkatan ekspresi reseptor endothelin A terbukti berperan dalam menyebabkan progresifitas dan metastasi kanker ovarium. REB berperan sebagai klirens endothelin-1 dan meningkatkan proses apoptosis. Cisplatin sebagai lini pertama pengobatan kanker ovarium memiliki efek samping dan berisiko mengembangkan kanker ovarium resistensi cisplatin. Kurkumin sebagai salah satu bahan alami terbukti memiliki potensi sebagai antikanker dan dapat meingkatkan efikasi cisplatin. Tujuan: penelitian ini adalah untuk melihat efektifitas kombinasi kurkumin dan cisplatin sebagai tatalaksana alternatif kanker ovarium dilihat dari ekspresi relatif mRNA reseptor endothelin A dan reseptor endothelin B. Metode: Homogenasi jaringan ovarium tersimpan yang dilanjutkan dengan sentrifugasi. Cairan supernatan diambil untuk dilakukan purifikasi. RNA yang terfurifikasi diubah menjadi cDNA. Selanjutnya, analisis dilakukan menggunakan mesin qRT-PCR, dengan metode Livak-Schmittgen 2(-Ct). Hasil: Ekspresi mRNA reseptor endothelin B pada kelompok normal (7,376±1,407), DMBA +Cis (1,701±1,096), DMBA+Cis+Cur (7,391±2,261), DMBA (0,649±0,221), dengan p<0,05. Hasil bermakna pada kelompok DMBA dan DMBA+Cis+Kur dengan p=0,014. Ekspresi mRNA reseptor endothelin A pada kelompok normal (0,698±0,366), DMBA+Cis (5,311±2,737), DMBA+Cis+Kur (7,502±2,476), DMBA (10,970±3,883), dengan p<0,05. Namun antar kelompok DMBA dan kelompok DMBA+Cis+Kur atau DMBA+Cis tidak ditemukan hasil bermakna p>0,05. Simpulan: Kombinasi kurkumin dan cisplatin yang diberikan pada tikus model kanker ovarium yang diinduksi DMBA, dapat memengaruhi jalur reseptor endothelin melalui peningkatan ekspresi relatif mRNA reseptor endothelin B, dan kecendrungan penurunan ekspresi reseptor endothelin A.

.....Background: There was an 80% increase in endothelin A receptor expression and 40% endothelin B expression in ovarian cancer. Increased expression of endothelin A receptors has been shown to play a role in causing progression and metastasis of ovarian cancer. REB acts as endothelin-1 clearance and increases the apoptotic process. Cisplatin as the first line of ovarian cancer treatment has side effects and the risk of developing cisplatin- resistant ovarian cancer. Curcumin as a natural ingredient is proven to have potential as an anticancer and can increase the efficacy of cisplatin. The purpose of this study was to determine the effectiveness of the combination of curcumin and cisplatin as an alternative treatment for ovarian cancer in terms of the relative expression of endothelin A and endothelin B receptor mRNAs. Methods: Homogenation of stored ovarian tissue followed by centrifugation. The supernatant fluid is taken for purification. The purified RNA is converted into cDNA. Furthermore, the analysis was performed using a qRT- PCR machine, with the Livak-Schmittgen methode 2(-Ct). Results: The expression of mRNA

endothelin B receptor in normal (7.376 ± 1.407), DMBA + Cis (1.701 ± 1.096), DMBA + Cis + Cur (7.391 ± 2.261), DMBA (0.649 ± 0.221) groups, with $p < 0.05$. The results were significant in the DMBA and DMBA + Cis + Kur groups with $p = 0.014$. The expression of endothelin A receptor mRNA in normal (0.698 ± 0.366), DMBA + Cis (5.311 ± 2.737), DMBA + Cis + Kur (7.502 ± 2.476), DMBA (10.970 ± 3.883) groups, with $p < 0.05$. However, between the DMBA group and the DMBA + Cis + Kur or DMBA + Cis group there were no significant results found with $p > 0.05$. Conclusion: The combination of curcumin and cisplatin given to DMBA-induced ovarian cancer model mice can affect the endothelin receptor pathway through an increase in the relative expression of endothelin B receptor mRNA, and a tendency to decrease the expression of endothelin A receptors.