

Pengaruh pemberian kurkumin kadar tinggi terhadap faktor angiogenik vegf pada kultur jaringan kanker payudara MCF-7 = The influence of high concentration of curcumin towards vegf level as and angiogenic factor in tissue culture of breast cancer cell line MCF -7

Sianipar, Imelda Rosalyn, author

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Abstrak

ABSTRAK

Latar Belakang: Kanker payudara adalah salah satu kanker yang paling sering terjadi pada wanita. Dalam perkembangannya, sel kanker payudara membutuhkan vaskularisasi baru. Sel kanker mampu menginisiasi pembentukan pembuluh darah baru bagi dirinya sendiri dengan cara mengubah keseimbangan antara faktor proangiogenik dan antiangiogenik. Kurkumin adalah molekul yang pleiotropik, dapat memodulasi berbagai target pada sel kanker, termasuk aktivasi berbagai faktor transkripsi, reseptor, protein kinase, reseptor, sitokin, enzim dan faktor pertumbuhan yang diperlukan dalam pertumbuhan sel kanker payudara. Tujuan: Untuk mengetahui pengaruh pemberian kurkumin kadar tinggi terhadap kadar VEGF pada kultur jaringan sel kanker payudara MCF-7. Metode: subkultur jaringan kanker payudara MCF-7 dalam medium RPMI komplet+ FBS 10% sejumlah 9 sampel tiap kelompok perlakuan. Inkubasi 72 jam. Cairan kultur diambil, kadar VEGF diperiksa secara kuantitatif dengan ELISA. Hasil: kadar VEGF kelompok MCF-7+kurkumin 0,05mM berbeda bermakna dengan kadar VEGF kelompok MCF-7 tanpa kurkumin ($p = 0,014$). Kadar VEGF kelompok perlakuan MCF-7+kurkumin 0,1mM juga berbeda bermakna dibandingkan dengan kelompok MCF-7 tanpa kurkumin ($p = 0,001$). Namun kadar VEGF kelompok MCF-7+kurkumin 0,05mM jika dibandingkan dengan kelompok MCF-7+kurkumin 0,1mM tidak berbeda bermakna ($p = 0,262$). Kesimpulan: Kurkumin kadar 0,05 mM dan 0,1 mM dapat menurunkan kadar VEGF pada kultur jaringan kanker payudara MCF-7. Kurkumin kadar 0,05 mM dan 0,1 mM dapat menghambat proliferasi sel yang diikuti dengan penurunan kadar total VEGF pada kultur jaringan kanker payudara MCF-7.

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Abstract

Background: Breast cancer is one of the most prevalent cancer in women. In order to grow, the tumor cells require new vascularization, New vascularization is initiated by the tumor cells themselves by recruitment of their own blood supply by shifting the balance between proangiogenic and antiangiogenic factors. Curcumin is a pleiotropic factor which can modulate various targets on cancer cells, including activation of transcription factors, receptors, protein kinase, cytokines, enzymes, and growth factors needed for breast cancer cells' growth. Objective: To identify the influence of high dose curcumin towards VEGF level in breast cancer cell line MCF-7. Method: In this study, breast cancer cell line MCF-7 was subcultured in complete RPMI medium + FBS 10%, with 9 samples for each treatment group; then incubated for 72 hours. VEGF concentration was measured with ELISA from the supernatant of the cell culture. Result: The VEGF levels of both MCF-7 + curcumin 0.05 mM treatment group and MCF-7 + curcumin 0.1 mM treatment group are significantly lower than the VEGF level of MCF-7 without curcumin treatment group ($p = 0.014$ and $p = 0.001$). The VEGF level of MCF-7 + curcumin 0.05 mM treatment group is not significantly different from the VEGF level of MCF-7 + curcumin 0.1 mM treatment group ($p = 0.262$). Conclusion:

Corcurnin dose of 0.05mM and 0.1mM lower the VEGF level in breast cancer cell line MCF-7. Corcurnin dose of 0.05 mM and 0,1 mM lower the proliferation of breast cancer cell line MCF-7.