Efek asam galat dan senyawa turunannya terhadap regulasi inflamasi pada kultur primer endometriosis: tinjauan terhadap ekspresi mRNA NF-kB, serta sekresi TNF-?, dan IL-6 = Effect of gallic acid and its derivatives on inflammatory regulation of endometriosis primary culture study on nf kb mrna expression tnf alpha and il 6 secretion / Popi Sopiah

Popi Sopiah, author

Abstrak

ABSTRAK
Latar belakang. Proses inflamasi kronik dan persisten mempengaruhi tingginya rekurensi dan survival endometriosis pasca pembedahan. Hal ini menjadi permasalahan endometriosis, sehingga perlu pengembangan terapi target salah satunya yaitu asam galat. Asam galat terbukti efektif sebagai antikanker, anti tumor, anti inflamasi dan antibakterial pada beberapa cell line, namun efektifitasnya pada sel endometriosis harus dibuktikan. Tujuan. membuktikan efek asam galat dan senyawa turunannya terhadap regulasi inflamasi pada kultur primer endometriosis ditinjau dari ekspresi mRNA NF-kB, serta sekresi TNF-? dan IL-6. Metode. Sel endometriosis berasal dari jaringan endometriosis pasien yang menjalani laparaskopi, diisolasi secara enzimatis dan dikultur primer. Sel kultur diberi perlakuan asam galat, heptil dan oktil galat dengan dosis 25,6 g/mL, 51,2 g/mL dan 102,4 g/mL selama 48 jam, kemudian diinduksi dengan LPS 500 ng/mL selama 24 jam. Regulasi inflamasi dinilai dari ekspresi mRNA NF-kB dengan qRT-PCR, kadar sekresi TNF-? dan IL-6 dengan ELISA, serta inhibisi viabilitas sel dengan MTS Assay. Hasil. Setelah data dirasiokan dengan kontrol, ketiga zat signifikan menghambat viabilitas sel endometriosis p value 0,000 dengan inhibisi tertinggi pada dosis 102,4 g/mL. Terjadi penurunan ekspresi relatif NF-kB yang dirasiokan dengan kontrol dan IL-6 meskipun secara statistik tidak bermakna. Konsentrasi TNF? tidak berbeda secara bermakna p value 0,340 . Kesimpulan. Asam galat dan senyawa turunannya berpengaruh terhadap inhibisi viabilitas sel, penurunan ekspresi relatif NF-kB dan IL-6, namun tidak bermakna terhadap penekanan sitokin TNF-?. Perlu dilakukan studi lanjut untuk menilai efektifitas asam galat sebagai kandidat obat antiinflamasi pada endometriosis ditinjau aspek lain.
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ABSTRACT
Background. Endometriosis is a benign gynecological disorder characterized by the growth of the lining of the endometrium like tissue outside the uterus. The cause of the growth of endometriosis is not known well, chronic and persistent inflammatory process is suspected to be one of the pathogenesis that contributes to the high recurrence and survival endometriosis. One of the potential therapeutic agents is a gallic acid which proved effective in earlier studies as an anti cancer, anti tumor, anti inflammatory and antibacterial in several cell line. The Effectiveness of gallic acid to the endometriosis cell is a preliminary study and have not found evidence of publication yet. Object. Proving the effect of gallic acid and its derivatives on the inflammatory regulation of endometriosis primary culture study on mRNA expression of NF kB, TNF , and IL 6 secretion. Method. Endometriosis cells from Indonesian endometriosis patients tissues who had undergone laparoscopy surgery were isolated by the enzymatic reaction and primary cultured. Cultured cells

treated by gallic acid and alkyl ester synthetic derivatives of the gallic acids heptyl gallate and octyl gallate each with the dosage of 25,6 g mL, 51,2 g mL, and 102.4 g mL for 48 hours and then induced by LPS 500 ng mL for 24 hours. Parameter research was assessed by qRT PCR for mRNA expression of NF kB, ELISA for the quantification of TNF and interleukin 6, and MTS assay was used to observe endometriosis cell viability. Results. After the data was rationalized with the control, three substances showed significant inhibition of endometriosis cell viability. The highest inhibition for all treatment was at doses 102,4 g mL. Overall there was an inhibition of relative expression of mRNA NF kB were rationalized to controls and suppression of IL 6 in octyl gallate groups. The concentration of TNF among the groups did not differ significantly p value 0.340 . Conclusion. Gallic acid and its derivatives have significantly inhibition effect toward cell viability, mRNA expression of NF kB, and IL 6 but have not significantly effect toward cytokine TNF . Further studies need to be conducted to assess the effectiveness of gallic acid as an anti inflammatory drug candidate toward to any pathway.