Peran stres oksidatif terhadap ekspresi gen supresor tumor arid1a pada sel endometriosis dan kanker ovarium = The role of oxidative stress in on the expression of the tumor suppressor gene arid1a in endometriosis cells and ovarian cancer

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Abstrak

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Pendahuluan: Endometriosis merupakan suatu kelainan jinak ginekologi yang dapat mengalami transformasi menjadi kanker. Stres oksidatif diduga berperan dalam perkembangan penyakit endometriosis. Gen supresor tumor ARID1A banyak ditemukan termutasi dan inaktif pada kanker ovarium yang berhubungan dengan endometriosis. Tujuan penelitian adalah untuk menganalisis peran stres oksidatif terhadap ekspresi gen supresor tumor ARID1A dalam transformasi endometriosis menjadi ganas.
Metoda: Penelitian dimulai dengan 10 sampel jaringan kanker ovarium, 10 sampel endometriosis dan3 jaringan endometrium eutopik sebagai kontrol yang diisolasi mRNA dan proteinnya. Analisis ekspresi gen ARID1A pada tingkat mRNA dilakukan dengan pemeriksaan RT-qPCR dan pada tingkat protein dengan ELISA. Pada sel endometriosis dan kanker ovarium dilakukan analisis stres oksidatif dengan pemeriksaan aktivitas antioksidan MnSOD dan pemeriksaan kadar MDA sebagai salah bukti kerusakan salah satu komponen sel. Setelah itu dilakukan uji eksperimental pada kultur sel endometriosis dan endometrium eutopik sebagai kontrol. Kedua sel kultur diinduksi dengan H2O2 konsentrasi 0 nM, 100 nM, dan 1000 nM. Analisis dilakukan terhadap ketahanan hidup sel, kadar ROS dan ekspresi gen ARID1A pada tingkat mRNA dan protein.
Hasil: Efek induksi H2O2 dalam menekan ekspresi gen ARID1A sel endometriosis dan sel endometrium eutopik pada tingkat mRNA dan protein, bermakna, meskipun pada kanker ovarium tidak bermakna pada penelitian ini.
Kesimpulan: Stres oksidatif berperan dalam menekan ekspresi gen supresor tumor ARID1A ditingkat mRNA dan protein pada endometriosis
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ABSTRAK
Introduction: Endometriosis as a gynecologic benign lesion, can transform itself into cancer. Oxidative stress is considered as an important factor in endometriosis development. Studies found that ARID1A as tumor suppressor gene, was frequently mutated and inactivated in endometriosis associated ovarian cancer. The aim of the study is to analyze the role of oxidative stress on ARID1A expresion in endometriosis malignant transformation.
Methods: This study started with ten samples of ovarian cancer, ten samples of

endometriosis, and 3 samples of eutopic endometrioid tissues as control. They were analyzed for the expression of ARID1A by RT-qPCR and ELISA, then analyzed for the activity of MnSOD as antioxidant enzyme and level of malondialdehyde as one of the oxidative stress damage effect evidence on cell's components. The second part of the study was experimental study on cultured eutopic endometrial and endometriosis cells. They were induced by H2O2 of 0, 100, and 1000 nM concentration. Analysis of the expression of ARID1A by RTqPCR and ELISA, and the DCFH-DA for the level of Reactive oxygen species were done.
Result: The impact of the H2O2 induction in repressing ARID1A gene expression on the endometriosis as well on the eutopic endometrium cells are significant, but not on the ovarian cancer in this study.
Conclusion: Oxidative stress has a role in repressing the expression of ARID1A gene at the mRNA and protein levels on the endometriosis., Introduction: Endometriosis as a gynecologic benign lesion, can transform itself
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