

HUBUNGAN EKSPRESI GEN CYP19A1

DENGAN AKTIVITAS BIOSINTESIS ANDROGEN INTRATUMORAL PADA PASIEN ADENOKARSINOMA PROSTAT DI RSUP DR SARDJITO

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Abstrak

Latar belakang: Berbagai gen dalam sintesis dan metabolisme androgen telah dipelajari dalam kaitannya dengan predisposisi dan progresifitas kanker prostat, seperti beberapa kelompok steroid 5α -reduktase (SRD5A), 3β -hidroksysteroid dehidrogenase (HSD3B), dan 17β -hidroksysteroid dehidrogenase (HSD17B), reseptor androgen (AR), sitokrom P450 17 (CYP17), dan sitokrom P450 19A1 (CYP19A1). Enzim aromatase (CYP19A1) berperan penting terhadap keseimbangan antara androgen dan estrogen. Prostat dipengaruhi oleh estrogen dari sumber perifer serta melalui aktivitas aromatase di stroma. Adanya studi yang menyimpulkan peningkatan aktivitas aromatase dan ekspresi mRNA di sel stroma pada kanker prostat.

Tujuan: Tujuan penelitian ini adalah untuk mengetahui hubungan dan peran dari ekspresi gen CYP19A1 terhadap aktivitas biosintesis androgen intratumoral pada pasien prostate cancer

Metode: Sampel penelitian ini adalah pasien yang didiagnosis adenokarsinoma prostat berdasarkan pemeriksaan patologi anatomi, yang menjalani operasi TURP atau biopsi prostat di Rumah Sakit Dr. Sardjito. Sebanyak 30 sampel dilakukan pemeriksaan PCR untuk mengetahui ada dan tidaknya ekspresi gen CYP19A1. Dilakukan analisis hubungan ekspresi gen CYP19A1 dengan usia pasien, stadium, adanya metastasis organ, Gleason score, dan nilai PSA

Hasil: Analisis dengan menggunakan *Chi-Square Tests* didapatkan nilai p 0,111 pada hubungan ekspresi gen CYP19A1 dengan usia pasien, nilai p 0,128 pada hubungan ekspresi gen CYP19A1 dengan staging tumor, nilai p 0,431 pada hubungan ekspresi gen CYP19A1 dengan ada tidaknya metastasis organ, nilai p 0,218 pada hubungan ekspresi gen CYP19A1 dengan jumlah Gleason score, nilai p 0,812 pada hubungan ekspresi gen CYP19A1 dengan nilai PSA

Kesimpulan: Pada penelitian ini disimpulkan bahwa tidak ada hubungan antara ekspresi gen CYP19A1 dengan aktivitas biosintesis androgen intratumoral berdasarkan usia pasien, stadium klinis pasien, metastasis organ, jumlah *Gleason score*, dan nilai PSA

Kata kunci: *androgen, prostate cancer, SRD5A, HSD3B, HSD17B, AR, CYP17, CYP19A1, metastasis, Gleason score, PSA*

RELATIONSHIP OF CYP19A1 GENE EXPRESSION WITH INTRATUMORAL ANDROGEN BIOSYNTHESIS ACTIVITY IN PROSTATE CANCER PATIENTS

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Abstract

Background: Various genes in the synthesis and metabolism of androgens have been studied in relation to the predisposition and progression of prostate cancer, such as several members of the steroid 5 α -reductase (SRD5A), 3 β -hydroxysteroid dehydrogenase (HSD3B), and 17 β -hydroxysteroid dehydrogenase (HSD17B) families, androgen receptor (AR), cytochrome P450 17 (CYP17), and cytochrome P450 19A1 (CYP19A1). Aromatase (CYP19A1) catalyzes the conversion of androgens to estrogens. The prostate is affected by estrogen from peripheral sources as well as through aromatase activity in its stroma. There is also evidence of elevated levels of aromatase activity and mRNA expression in stromal cells in prostate cancer.

Objective: The purpose of this study is to determine the relationship and role of CYP19A1 gene expression to androgen biosynthesis activity in prostate cancer patients.

Method: The samples of this study are patients diagnosed with prostate adenocarcinoma based on histopathology examination who underwent TURP surgery at Sardjito General Hospital. A total of 30 samples were examined for PCR to determine the presence and absence of CYP19A1 gene expression. CYP19A1 gene expression were analysed with patient's age, stage, organ metastasis, Gleason score, and PSA value.

Result: Analysed using Chi-Square Tests, p value of 0.111 was obtained on expression of CYP19A1 gene with patient's age, p value 0.128 on expression of CYP19A1 gene with staging tumor, p value 0.431 on expression of CYP19A1 gene with presence or absence of organ metastasis, p value 0.218 on expression of CYP19A1 gene expression with total Gleason score, p value 0.812 on expression of CYP19A1 gene with PSA value.

Conclusion: There was no association between CYP19A1 gene expression and intratumoral androgen biosynthesis activity based on patient's age, patient's clinical stage, organ metastasis, Gleason score, and PSA value.

Keywords: *androgen, prostate cancer, SRD5A, HSD3B, HSD17B, AR, CYP17, CYP19A1, metastasis, Gleason score, PSA*