

HUBUNGAN EKSPRESI GEN HSD3B1 DENGAN KEJADIAN METASTASIS PADA ADENOKARSINOMA PROSTAT

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Abstrak

Latar Belakang : Kanker prostat merupakan jenis keganasan non-kulit yang terbanyak di negara barat atau keganasan tersering ke 4 pada pria di seluruh dunia. Hormon androgen memiliki peran penting dalam perkembangan dan progresifitas kanker prostat. Produksi androgen intrakrin atau parakrin berperan penting pada resistensi sel karsinoma prostat terhadap terapi supresi androgen. Salah satu faktor yang meningkatkan aktivitas metabolisme androgen intratumoral adalah perubahan epigenetik dan struktur DNA. Dalam CRPC, proses metilasi dan perubahan struktur DNA pada sel kanker prostat terjadi secara signifikan pada beberapa gen pengatur enzim steroidogenik; CYP17A1, CYP11A1, CYP19A1, HSD3B1, AKR1C2. Gen HSD3B1 mengkode enzyme 3 β -hydroxysteroid dehydrogenase type 1 (3 β HSD1) yang banyak diekspresikan pada plasenta, jaringan perifer seperti kulit, prostat, dan payudara. 3 β -hydroxysteroid dehydrogenase type 1 (3 β HSD1) merupakan enzyme yang mengatalis konversi adrenal-derived steroid dehydroepiandrosterone menjadi dehydrotestosterone (DHT). Gen ini berperan dalam castration-resistant prostate cancer (CRPC).

Penelitian ini bertujuan untuk mengetahui hubungan antara ekspresi gen HSD3B1 dengan metastasis pada kanker prostat.

Material dan Metode : sampel penelitian diambil dari jaringan pada pasien yang dilakukan TURP atau biopsy prostat. Sampel dibagi menjadi dua grup yaitu metastasis dan non metastasis. Dilakukan pemeriksaan ekspresi gen HSD3B1 dengan PCR kemudian dilakukan elektroforesis dengan agarose 2% dan dibaca dengan sinar ultraviolet. Data dianalisis dengan uji *chi square* dengan *level confidence* $P < 0.05$.

Hasil : Jumlah subjek yang memenuhi kriteria inklusi sebanyak 30 orang. 16 (53%) subjek dengan metastatis dan 14 (47%) non metastasis. Sebanyak 20 (66,7%) dari seluruh sampel mengekspresikan gen HSD3B1, 33,7% tidak mengekspresikan. Ekspresi HSD3B1 positif, sebanyak 68,7 % pada kelompok metastasis dan 64,3% pada kelompok non metastasis dengan Nilai $p=0,95$ ($p>0,05$) tidak ada hubungan yang signifikan metastatis organ dengan ekspresi gen HSD3B1

Kesimpulan : Ekspresi gen HSD3B1 pada pasien kanker prostat dengan metastasis lebih tinggi dibandingkan dengan kejadian non metastatik, tetapi hubungan antara ekspresi gen HSD3B1 dengan kejadian metastatic secara statistik tidak bermakna.

Kata Kunci : HSD3B1, kanker prostat, metastasis.

CORRELATION BETWEEN HSD3B1 GENE EXPRESSION WITH METASTATIC PROSTATE CANCER

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Abstract

Introduction & objectives : Prostate cancer is the most common malignancy among males worldwide, with estimated 1.1 million new cases every year. Androgen hormone activation pathway has important role in cancer growth and progression. Intra tumor Androgen biosynthesis remain active by increasing steroidogenesis enzyme in castrated tumor. Epigenetic and DNA Structure changes are the factors that increase metabolic activity of intra tumoral androgen. Metilation process and DNA structure changes in prostate cancer cells are significant in several steroidogenic regulator enzyme gene : CYP17A1, CYP11A1, CYP19A1, HSD3B1, AKR1C2.

HSD3B1 gene regulate 3 β -hydroxysteroid dehydrogenase type 1 (3 β HSD1) enzyme which is excessive expression in peripheral tissue, skin, prostate and breast. . 3 β HSD1 is enzyme that catalyzed conversion of Adrenal-derived steroid dehydroepiandrosterone to dehydrotestosterone (DHT). This gene play important role in Prostate Cancer Progression.

This study aims to determine the relation between expression of HSD3B1 and metastatic in prostate cancer.

Materials & methods : Samples collected from prostate tissue in TURP or prostate biopsy specimen. We devided into two groups: metastatic group and non metastatic group. We examined the expression of HSD3B1 gene with Polymerase Chain Reaction (PCR), then the result processed with electrophoresis using agarose 2% and measure under the ultraviolet. Data were analyzed using *chi square* test with a confidence level of $P < 0.05$.

Results : There were 30 samples diagnosed with prostate cancer, 16 (53%) samples with metastatic and 14 (47%) with non metastatic. There were 20 (66,7%) samples had positive expresion of HSD3B1. Mean of expression HSD3B1 in metastatic group were 4,8469, higher than in non metastatic group 2,6800. Expression of HSD3B1 were positive 68,7% in metastatic group, and 64% in non metastatic group. The correlation between expression HSD3B1 with metastatic were statistically no significant at $P = 0,95$ ($P > 0,05$).

Conclusion : HSD3B1 gene expression in metastatic prostate cancer were higher than non metastatic, but correlation between HSD3B1 expression and metastatic statistically no significant.

Key word : HSD3B1, prostate cancer, metastatic