

## INTISARI

**Latar Belakang:** Kanker prostat (PCa) adalah salah satu penyebab utama kematian terkait kanker pada pria. Testosteron total mempengaruhi patofisiologi dan perkembangan PCa. Hubungan gen reseptor estrogen 1 (ESR-1) pada perkembangan dari epitel normal ke PCa masih perlu diteliti lebih lanjut. Penelitian ini bertujuan untuk menganalisis hubungan antara ekspresi gen ESR-1 dan testosteron total sebelum pengobatan pada jaringan PCa.

**Metode:** Jaringan *formalin-fixed paraffin-embedded* (FFPE) kanker prostat dari pasien yang menjalani biopsi prostat atau reseksi prostat transurethral di RSUP Dr. Sardjito. *Quantitative real-time polymerase chain reaction* (qPCR) digunakan untuk mengukur ekspresi ESR-1 pada jaringan kanker prostat yang telah dikonfirmasi secara histopatologis. Kadar testosteron sebelum pengobatan diperoleh dari rekam medis. Data dianalisis menggunakan uji korelasi, dengan nilai  $p < 0,05$  dianggap signifikan.

**Hasil:** Dua puluh tiga sampel jaringan PCa dianalisis. Nilai median dari kadar testosteron adalah 155 ng/dl, dan nilai median ekspresi gen ESR-1 adalah 8,0. Kami menemukan adanya hubungan yang signifikan antara kadar testosteron dan ekspresi gen ESR-1 ( $p = 0,045$ ). Selain itu, ditemukan korelasi terbalik, dengan koefisien korelasi Spearman sebesar -0,42.

**Kesimpulan:** Dalam penelitian ini, terdapat hubungan yang signifikan antara ekspresi gen ESR-1 dan kadar total testosteron sebelum pengobatan pada PCa.

**Kata Kunci:** Kanker prostat, ESR-1, Estrogen receptor 1 gene, Testosteron

## ABSTRACT

**Background:** Prostate cancer (PCa) is one of the major causes of cancer-related death in men. Testosterone levels strongly influence the pathophysiology and progression of PCa. Expressed both in normal prostate and cancer tissue, the role of estrogen receptor 1 (ESR-1) gene expression and the progression from normal epithelium to PCa remains to be further investigated. We aimed to analyze the relationship between ESR-1 gene expression and pre-treatment testosterone levels in PCa tissue.

**Methods:** We included formalin-fixed paraffin-embedded (FFPE) PCa tissues from patients who underwent prostate biopsy or transurethral resection of the prostate at our institution. Quantitative real-time polymerase chain reaction (qPCR) was used to quantify the expression of ESR-1 in histopathologically confirmed prostate cancer tissues. Pre-treatment testosterone level was obtained from medical record. The data were analyzed using a correlation test, with a p-value of  $< 0.05$  considered significant.

**Results:** Twenty-three PCa tissue samples were analyzed. The median testosterone level was 155 ng/dl, and the median ESR-1 gene expression was 8.0. We found a significant association between testosterone levels and ESR-1 gene expression ( $p = 0.045$ ). Furthermore, an inverse correlation was observed, with Spearman's correlation coefficient of -0.42.

**Conclusions:** In this study, the ESR-1 gene expression was inversely related to pre-treatment total testosterone level in PCa.

**Keywords:** prostate cancer, ESR-1, estrogen receptor 1 gene, testosterone