

## Analisis ekspresi protein zip 1 dan caspase-3 pada adenokarsinoma prostat = Analysis expression of zip1 and caspase-3 protein in adenocarcinoma prostate

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### Abstrak

[<b>ABSTRAK</b><br>

Pendahuluan: Proses karsinogenesis adenokarsinoma prostat terjadi akibat disregulasi kadar zinc dalam sel. Molekul zinc intrasel berperan dalam metabolisme aerob mitokondria dan induksi apoptosis. Penyerapan zinc diatur oleh protein ZIP1, berperan meningkatkan kandungan zinc sitoplasmik intrasel dengan membawa zinc dari cairan ekstrasel. Kadar zinc yang tinggi dan ekspresi protein ZIP1 banyak ditemukan pada epitel prostat normal, sedangkan pada kanker prostat ditemukan sedikit atau tidak ada ekspresi protein ZIP1. Penurunan ekspresi ZIP1 diduga dapat menghambat apoptosis, serta memacu perkembangan adenokarsinoma prostat. Penelitian ini bertujuan menganalisis korelasi ekspresi protein ZIP1 dan Caspase-3 pada jaringan adenokarsinoma prostat berdasarkan Gleason score yang berbeda.

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Metode: Desain studi analitik retrospektif dengan desain potong lintang. Sampel penelitian ini adalah 31 sediaan blok parafin adenokarsinoma prostat yang memenuhi kriteria inklusi. Sediaan dipulas menggunakan teknik imunohistokimia untuk mengetahui ekspresi protein ZIP1 dan caspase-3. Ekspresi protein pada pulasan slide dihitung menggunakan program imageJ. Gleason score sebagai data sekunder yang didapatkan dari laporan kasus. Korelasi ekspresi kedua protein berdasarkan Gleason score dianalisis dengan uji korelasi Pearson menggunakan SPSS 11.5.

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Hasil: Rerata positivitas ekspresi ZIP1 pada adenokarsinoma prostate adalah 35% dan rerata positivitas caspase-3 adalah 33%. Terdapat korelasi positif bermakna antara ekspresi ZIP1 dan caspase-3 ( $r = 0.379$ ,  $p = 0,018$ ). Terdapat korelasi positif antara ekspresi ZIP1 dan caspase-3 pada kelompok intermediate grade ( $r = 0.73$ ,  $p = 0.01$ ) dan korelasi lemah tidak bermakna pada kelompok high grade ( $r = 0.04$ ,  $p = 0.48$ ).

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Kesimpulan: Terdapat korelasi positif antara ekspresi ZIP1 dan ekspresi caspase-3 pada adenokarsinoma prostat.;

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<b>ABSTRACT</b><br>

Introduction: Carcinogenesis of adenocarcinoma of the prostate occurs due to dysregulation of zinc level within the cells. Intracellular zinc molecules contributes to mitochondrial aerobic metabolism. Its influx is regulated by a transporter protein ZIP1, whose non-presence is predicted to inhibit apoptosis, thus leads to the development of prostate adenocarcinoma. This study was aimed to analyze the correlation of ZIP1 and Caspase-3 expression in prostate adenocarcinoma with respect to its grading as represented by Gleason Score.

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Methods: This was a cross-sectional, retrospective analytical study on 31 formalyn-fixed, paraffin-

embedded tissue that meet inclusion criteria. The specimen was stained using immunohistochemical technique for ZIP1 and Caspase-3. Protein expression of each case were counted using ImageJ analysis. Gleason score were acquired as secondary data from the cases' reports. The correlation of their expression with respect of Gleason score were analyzed with Pearson's correlation using SPSS 11.5.

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Results: Mean expression level of ZIP1 and Caspase-3 in prostate adenocarcinoma were 35% and 33%, respectively. There was a significantly positive correlation between ZIP1 and Caspase-3 expression ( $r=0.379$ ;  $p=0.018$ ). However, their correlation was stronger in intermediate-grade group ( $r=0.73$ ;  $p=0.01$ ) and the correlation was much weaker in high-grade group ( $r=0.04$ ;  $p=0.48$ ).

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