Hubungan Ekspresi Aldehide Dehidrogenase (ALDH) terhadap Respon Terapi Radiasi pada Pasien Karsinoma Sel Skuamosa Serviks Stadium IIIB = Association Aldehyde Dehydrogenase (ALDH) Expression and Radiotherapy Response in Squamous Cell Carcinoma of Cervix Stage IIIB

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Abstrak

Latar belakang: Aldehyde dehydrogenase 1 (ALDH1) merupakan marker sel punca kanker serviks yang menunjukkan karakteristik radioresisten. Studi ini bertujuan untuk mengetahui hubungan ALDH1 terhadap respon radiasi karsinoma sel skuamosa serviks stadium IIIB.
Metode: Sebanyak 58 sampel dari 360 pasien yang didiagnosis karsinoma sel skuamosa serviks stadium IIIB yang mendapat radiasi lengkap periode 2016 – 2021 di RSCM memenuhi kriteria eligibilitas subjek penelitian ini. Pemeriksaan MRI pra-radiasi dan pasca radiasi serta ekspresi ALDH dengan imunohistokimiawi (Santa Cruz®) dilakukan pada 58 sampel blok paraffin. Respon terapi dinilai pada 3 bulan setelah radiasi. Kami membandingkan respon terapi komplet yang dihasilkan pada ekspresi ALDH rendah dan ekspresi ALDH tinggi. Analisis dilakukan dengan software SPSS.
Hasil: Nilai titik potong optimal skor ALDH terhadap respon radiasi adalah 166,05 pg/mL yang diperoleh dari analisis kurva ROC. Nilai AUC menunjukkan hasil 0.682 dengan sensitivitas 63,6% dan spesifisitas 64,0%. Skor ALDH 166,05 meningkatkan risiko hingga 3,1 kali untuk tidak tercapainya respon komplet (adj OR 3,127, IK 95% 1,034 – 9,456, p = 0,043). Ukuran tumor pre-radiasi (p = 0,593), derajat diferensiasi (p = 0,161), kelainan ginjal pre-radiasi (0,114), dan keratinisasi (p = 0,477) tidak berhubungan dengan respon radiasi.
Kesimpulan: Ekspresi ALDH yang tinggi berhubungan dengan respon radiasi tidak komplet pada karsinoma sel skuamosa serviks stadium IIIB. Pasien dengan skor ALDH 166,05 meningkatkan risiko tidak tercapainya respon komplet hingga 3,1 kali lebih tinggi dibandingkan dengan subjek dengan skor ALDH < 166,05.
.....Background: ALDH is cancer stem cell marker that has radioresistance characteristic. This study aims to determine the association between ALDH1 and the radiation response of stage IIIB cervical squamous cell carcinoma.
Methods: A total 58 of 360 patients diagnosed with stage IIIB cervical squamous cell carcinoma who received complete radiation during 2016-2021 at the RSCM met the eligibility criteria for this study. Pre- and post-irradiation MRI examinations and ALDH expression with immunohistochemistry (Santa Cruz®) were performed on 58 paraffin block samples. Therapy response was assessed at 3 months after radiation. We compared the complete response resulting in low and high ALDH expression. The analysis was carried out with SPSS software.
Results: The optimal ALDH score cut-off point on the radiation response was 166.05 pg/mL which was obtained from the analysis of the ROC curve. The AUC value was 0.682 with sensitivity and specificity, 63,6% and 64%, respectively. ALDH score 166.05 increased the risk by 2.7 times for not achieving the complete response (OR = 2,656, IK 95% 0,844 – 8,356, p = 0,095). Pre-radiation tumor size (p = 0.593),

degree of differentiation ($p = 0.161$), renal abnormalities ($p = 0.114$), and keratinization ($p = 0.477$) were not associated with radiation response.
Conclusions: High ALDH expression was associated with incomplete radiation response in squamous cell carcinoma of cervix stage IIIB