

Aktifitas manganese superoxide dismutase (MnSOD) sebagai prediktor respons terapi radiasi pada pasien karsinoma sel skuamosa serviks stadium IIIB = Manganese superoxide dismutase mnsod activity as a predictor of radiation therapy response on stage IIIB squamous cell carcinoma of the cervix

Sinaga, Romi Saut Halomoan, author

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Abstrak

Latar Belakang : Pasien kanker serviks di Indonesia terbanyak dalam stadium lanjut. Terapi standarnya adalah radiasi. Respons terapi radiasi tidak selalu komplet. MnSOD merupakan garda terdepan melawan radikal bebas yang dihasilkan radiasi. Aktifitas MnSOD dipikirkan dapat digunakan sebagai prediktor respons terapi radiasi. Diperkirakan semakin tinggi aktifitas MnSOD akan semakin buruk respons radiasinya.

Tujuan : Menilai aktifitas MnSOD pada biopsi KSS serviks stadium IIIB sebagai prediktor keberhasilan terapi radiasi.

Metode : Penelitian potong lintang komparatif ini dilakukan di Divisi Onkologi Ginekologi, Departemen Obstetri dan Ginekologi FKUI, RSCM Jakarta dan Departemen Biokimia dan Biologi Molekuler FKUI. Dilakukan penelusuran data base penelitian sebelumnya untuk mengidentifikasi sampel respons positif dan negatif, dilanjutkan pemeriksaan aktifitas MnSOD dengan spektrofotometri metode McCord dan Fridovich menggunakan kit RanSOD . Data komparatif yang didapat kemudian di analisis.

Hasil : Didapatkan 76 sampel yang memenuhi kriteria inklusi terdiri dari respons positif 47 61,8 negatif 29 38,2 . Dilakukan kategorisasi aktifitas MnSOD dengan titik potong pada nilai 13,126 U/mL. Dengan uji chi-square didapat hubungan bermakna secara statistik antara aktifitas MnSOD pada pasien kanker stadium IIIB dengan respons terapi radiasi. Nilai RR sebesar 1,849 1.075-3.178, IK 95 . Kesintasan dengan analisis bivariat memakai metode Kaplan-Meier: pasien dengan aktifitas MnSOD cutoff < 13,126 U/mL memiliki tingkat kesintasan 1 tahun yang lebih baik 63 dibandingkan dengan pasien kanker serviks IIIB dengan nilai aktifitas MnSOD ge; 14 . Risiko kematian dengan pengujian bivariat metode regresi cox: pasien dengan aktifitas MnSOD cutoff 13,126 U/mL memiliki risiko kematian 1,055 kali IK 95 : 1,003-1,110 dibanding pasien dengan aktifitas MnSOD dibawah nilai cutoff. Dari analisis multivariat terlihat aktifitas MnSOD semakin kuat sebagai prediktor respons terapi radiasi.

Kesimpulan : Aktifitas MnSOD tinggi pada jaringan KSS serviks stadium IIIB menghasilkan respons negatif dari terapi radiasi.

.....Background: Most of the cervical cancer patients in Indonesia came with advanced stage. Therefore, the choice of treatment is radiotherapy. Although, radiotherapy does not always result in complete response. MnSOD is considered to be one the antioxidant enzyme which has the ability to work against free radicals. Its activity is expected to be acted as response predictor to radiotherapy treatment. It is hypothesized that high MNSOD activity tend to predict poor response of radiotherapy on advanced cervical cancer patients.

Objective : To investigate MnSOD activity on cervical SCC stage IIIB as a predictor of radiotherapy response.

Methods : It is a comparative cross sectional study conducted in the Gynecology Oncology Division,

Obstetrics and Gynecology Department, Dr. Cipto Mangunkusumo Hospital Faculty of Medicine, University of Indonesia. Samples were collected from the tissue bank and research database. They were identified and divided into having positive or negative response to radiotherapy. In vitro experiment was conducted to measure the activity of MnSOD. Manganese superoxide dismutase was isolated using McCord and Fridovich method using RanSOD and the activity was analyzed using spectrophotometry. Data was then analyzed using SPSS.20 for comparative study.

Results : Seventy six samples were included in the study 47 61.8 with positive response and 29 38.2 with negative response on radiotherapy. Samples were then divided into having MnSOD activity of 13.126 U mL or 13.126 U mL. Univariate analysis chi square showed that there was statistically significant correlation between MnSOD activity and radiotherapy response in patients with cervical SCC stage IIIB RR 1.849 95 CI 1.075 3.178 . Survival analysis on the first year showed that patients with MnSOD activity 13.126 U mL had better survival than patients with MnSOD activity 13.126 U mL 63 vs 14 , Kaplan Meier study . Hazard ratio for overall survival was 1.055 95 CI 1.003 ndash 1.110 for patients with MnSOD activity of 13.126 U mL. Multivariate analysis showed that MnSOD activity was a strong predictor of radiotherapy response in this study.

Conclusion : This in vitro study showed that high activity of MnSOD was associated with poor response of radiotherapy for patients with cervical squamous carcinoma stage IIIB.