

Rasio malondialdehid katalase sebelum dan selama radiasi sebagai prediktor persentase pengecilan volume tumor pada kanker serviks stadium lanjut lokal = Malondialdehyde catalase ratio before and during radiation as a predictor tumor volume percentage reduction in locally advance cervical cancer

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Abstrak

Pendahuluan : Pada proses keganasan terjadi stres oksidatif, yang ditandai dengan peningkatan kadar serum malondialdehid (MDA) dan aktivitas antioksidan enzim katalase yang rendah. Rasio MDA katalase sebelum dan setelah radiasi fraksi ke 15 dapat menjadi prediktor persentase pengecilan volume tumor 4 minggu pasca radiasi komplit pada kanker serviks lanjut lokal.

Metode penelitian : Penelitian ini merupakan kohort prospektif pada 30 pasien kanker serviks lanjut lokal yang memenuhi kriteria inklusi di Departemen Radioterapi RS CiptoMangunkusumo periode Juli sampai September 2013. Pemeriksaan kadar MDA dan aktivitas enzim katalase dilakukan sebelum dan sesudah radiasi fraksi ke 15, menggunakan spektrofotometri. Respons terapi berdasarkan kriteria WHO dengan membandingkan persentase ukuran volume tumor sebelum radiasi dengan persentase volume tumor 4 minggu setelah radiasi komplit (radiasi eksterna 25 fraksi dan brakhiterapi 3 kali).

Hasil : Pada penelitian ini didapatkan rerata serum MDA sebesar 7,6 \pm 1,2 nmol/ml dan aktivitas enzim katalase 0,95 (0,8 ? 1,36) U/mL. Setelah radiasi fraksi ke 15 ditemukan peningkatan serum MDA menjadi 9,5 \pm 1,9 nmol/mL ($p < 0,001$) dan penurunan aktivitas enzim katalase menjadi 0,82 (0,71 ? 0,96) U/ml. Terdapat hubungan yang bermakna antara rasio MDA katalase sebelum dan setelah radiasi fraksi ke 15 dengan persentase pengecilan volume tumor 4 minggu setelah radiasi komplit.

Kesimpulan : Hasil penelitian ini menunjukkan terjadi stres oksidatif pada pasien kanker serviks lanjut lokal, yang ditandai dengan peningkatan kadar serum MDA dan penurunan aktivitas enzim katalase. Rasio MDA katalase sebelum dan sesudah radiasi fraksi ke 15 dapat menjadi prediktor persentase pengecilan tumor 4 minggu pasca radiasi komplit.

Introduction : Oxidative stress always occurs in cancer patient, which characterized with high level of serum Malondialdehyde (MDA) dan low activity of serum catalase enzymatic antioxidant. To determine the ratio of MDA and catalase activity before and after the 15th radiation fractions which can be a predictor of the tumor volume reduction percentage.

Method: This is a prospective cohort study of 30 locally advanced cervical cancer patients who meet the inclusion criteria in the Radiotherapy Department of Cipto Mangunkusumo Hospital from July 2013 to Sept 2013. MDA levels and catalase enzyme activities were examined before and after the 15th radiation fractions of external radiation using sphectrophotometry. The responds were assess according to WHO criteria, by comparing the size of the tumor volume before radiation and four weeks after completion of

radiation (25 fraction of external and 3 fractions of brakhiterapi).

Result: In this study, the mean of serum MDA level is 7.6 ± 1.2 nmol / mL and catalase enzyme activity median is 0.95 (0.8 to 1.36) U / mL . We found elevated of serum MDA levels to 9.5 ± 1.9 nmol / mL ($p < 0,001$) and the activity enzyme catalase significantly decrease to 0,82 (0,71 to 0,96) U/ml ($p < 0,001$) on the 15th external radiation fraction. There is a significant relationship is found between the ratio of MDA catalase before radiation and after the fifteenth external radiation fractions with the percentage of tumor volume reduction four weeks after completion of radiation ($r = 0.689$, $p = 0.001$) ($r = 0.418$, $p = 0.021$).

Conclusion: This study showed that oxidative stress occurs in patients with locally advanced cervical cancer, which characterized with high level of serum MDA and low activity of serum catalase. Ratio of mda catalase before radiation and after the fifteenth external radiation fractions can be a predictor of the percentage of tumor volume reduction four weeks after completion of radiation.</i>