

PERBEDAAN RASIO CHOLINE/ N-ASETIL ASPARTAT PASIEN HIGH GRADE GLIOMA SEBELUM DAN SESUDAH TERAPI RADIASI

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ABSTRAK

Latar Belakang

High Grade Glioma adalah tumor ganas otak yang berasal dari sel glial atau prekursorinya. Menurut World Health Organization (WHO) 2016 glioma dikategorikan menjadi empat derajat, yang termasuk high grade glioma (grade III-IV). Penelitian ini menggunakan metode pemeriksaan Magnetic Resonance Spectroscopy (MRS) yang memungkinkan penilaian metabolit jaringan seperti Choline (Cho) dan N-Asetil Aspartat (NAA) untuk menilai tingkat kerusakan neuron. Penilaian radio Cho/NAA dilakukan sebelum dan sesudah terapi radiasi dengan luaran penurunan nilai rasio Cho/NAA sesudah terapi radiasi

Tujuan

Penelitian ini bertujuan menganalisis perbedaan nilai rasio Cho/NAA pada pasien High Grade Glioma sebelum dan sesudah terapi radiasi

Metode

Penelitian ini menggunakan metode cohort dengan pengambilan sampel secara retrospektif terhadap 19 pasien dengan diagnosa high grade glioma yang menjalani terapi radiasi sejak Juli 2020 hingga Maret 2023. Data yang didapatkan berupa pemeriksaan MR Spektroskopi dan hasil histopatologi anatomi dari rekam medis pasien. Pasien dengan high grade glioma diberikan terapi radiasi dan dilakukan pemeriksaan MR Spektroskopi untuk mendapatkan nilai rasio Cho/NAA sebelum dan sesudah terapi radiasi.

Hasil

Terdapat perbedaan signifikan rasio Cho/NAA pada pasien high grade glioma sebelum dan sesudah terapi radiasi, dimana rasio Cho/NAA sesudah terapi radiasi lebih rendah daripada sebelum terapi radiasi. Nilai rasio Cho/NAA pasien dengan high grade glioma setelah terapi radiasi pada penelitian ini menunjukkan penurunan dibandingkan rasio Cho/NAA sebelum terapi radiasi. Penurunan rasio Cho/NAA yang bermakna sebagai respon dari terapi radiasi dengan rata – rata (mean) penurunan nilai rasio Cho/NAA 3.7 ; SB ± 3.01

Simpulan

Nilai Rasio Cho/NAA pada pasien High Grade Glioma sesudah terapi radiasi lebih rendah dibandingkan sebelum terapi radiasi. Sehingga pemeriksaan MRS dapat digunakan sebagai metode evaluasi High Grade Glioma.

Kata kunci : High Grade Glioma, Terapi Radiasi, Rasio Choline/N-Asetil Aspartat, *Magnetic Resonance Spectroscopy* (MRS)

DIFFERENCES IN CHOLINE/N-ACETHYL ASPARATE RATIO IN HIGH GRADE GLIOMA PATIENTS BEFORE AND AFTER RADIATION THERAPY

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ABSTRACT

Background

High Grade Glioma is a malignant brain tumor that originates from glial cells or their precursors. According to the 2016 World Health Organization (WHO) gliomas are categorized into four degrees, which include high grade gliomas (grade III-IV). This study used the Magnetic Resonance Spectroscopy (MRS) examination method which allows assessment of tissue metabolites such as Choline (Cho) and N-Acetyl Aspartate (NAA) to assess the level of neuronal damage. Cho/NAA ratio assessment was carried out before and after radiation therapy with the result being a decrease in the Cho/NAA ratio after radiation therapy

Aim

To analyze the differences in the value of the Cho/NAA ratio in High Grade Glioma patients before and after radiation therapy

Methods

This study used a cohort method with retrospective sampling of 19 patients with a diagnosis of high-grade glioma who underwent radiation therapy from July 2020 to March 2023. The data obtained was in the form of an MR spectroscopy examination and anatomical histopathological results from the patient's medical records. Patients with high grade glioma were given radiation therapy and MR spectroscopic examination was performed to obtain the value of the Cho/NAA ratio before and after radiation therapy.

Results

There is a significant difference in the Cho/NAA ratio in high grade glioma patients before and after radiation therapy, where the Cho/NAA ratio after radiation therapy is lower than before radiation therapy. The value of the Cho/NAA ratio of patients with high grade glioma after radiation therapy in this study showed a decrease compared to the Cho/NAA ratio before radiation therapy. A significant decrease in the Cho/NAA ratio in response to radiation therapy with an average (mean) decrease in the value of the Cho/NAA ratio was 3.7 ; SB ± 3.01

Conclusion

The value of the Cho/NAA ratio in High Grade Glioma patients after radiation therapy was lower than before radiation therapy. So that the MRS examination can be used as an evaluation method for High Grade Glioma.

Keywords : High Grade Glioma, Radiation Therapy, Choline/N-Acetyl Aspartate Ratio, *Magnetic Resonance Spectroscopy* (MRS)