CANCER MEETING 2020: Comparison of Mrs and Dwi differentiation between high grade gliomas and low grade gliomas

ABSTRACT

INTRODUCTION: Glioma is neuroepithelial tumor originating from the glial cell of the central nervous system. Magnetic Resonance Spectroscopy and Diffusion Weighted Imaging, Apparent Diffusion Coefficient values are useful for differentiating between brain high grade gliomas and low grade gliomas.

OBJECTIVES: In this study we aimed to compare the MRS and DWI in differentiating between low and high grade gliomas. To assess the diagnostic accuracy of MRS and DWI, ADC value in grading gliomas before treatment. We can suspect the glioma in conventional MRI but its hard to differentiate high and low grade glioma in it. And it is important to diagnose reliably because of itsimportance in treatment planning.

METHOD AND MATERIALS: We conducted a retrospective analysis of 47 patients with glioma (HGG/LGG 28/19) were evaluated by using 3T MR machine. All of the cases were pathologically proven with glioma. MRS and DWI were used to determine the differences between high and low grade gliomas. We were measured the Naa, Cho, Cr, Naa/Cr, Cho /Cr, Cho/Naa and ADC value on enhanced region of the tumor mass. We calculated all of the results on IBM SPSS statistics 21.

RESULT: On MRS analysis LGG are generally characterized by relatively high N- acetylaspartate, low level of NAA in HGGs (P = 0.01), and in elevated Cho (P=0.01) peak in high grade glioma. Relatively high Cho/Naa (P=0.012) and high Cho/Cr (P=0.006) ratios in high grade gliomas and statistically significant difference between low and high grade gliomas. ADC value were higher than normal in both grade of gliomas and the ADC value significantly higher in LGG (1.46±0.36)(P= 0.03).

CONCLUSION: In this study we calculated that MRS and DWI are useful for grading gliomas and evaluation of high and low grade gliomas. The Low grade glioma shows relatively higher ADC values in ADC map and higher NAA, Cr, low Cho/Cr ratios in the MRS. While high grade gliomas appears slightly high ADC value in ADC map, high Cho level, high Cho/Cr ratios, low NAA levels and high ratio of the Cho/Naa in MRS

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