

عنوان مقاله:

The Utility of Diffusion Weighted Magnetic Resonance Imaging in Detection of the Origin of the Brain Solid Metastatic Tumors

محل انتشار:

علوم اعصاب کاسپین، دوره 1، شماره 3 (سال: 1394)

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خلاصه مقاله:

Background: Early diagnosis of brain tumors has significant effect on the treatment process. Brain metastatic tumors are usually diagnosed following the neurological symptoms in patients or incidentally after Computerized Tomography (CT) scan and Magnetic Resonance Imaging (MRI) requests of the brain. Objectives: Implementation of a new method for being informed about the origin of brain tumors by using MRI before surgery. Materials and Methods: In this study, 25 patients with brain metastatic tumors were randomly selected and imaged with T2Weighted multi echo sequences and GRE EPI (DWI) in addition to taking routine sequence of brain. Software output such as variables including signal intensity, Apparent Diffusion Coefficient (ADC) value. In order to analyze the data and correlations between variables in this study, statistical t-test method and Graph pad prism software: version 5.4 has been used. $p < 0.05$ was considered as the level of significance. Results: Significant difference between ADC values at the center of metastatic tumors with different origin was found. ADC value of 0.5613 ± 0.02580 ($\times 10^{-3}$ mm/s) indicates brain metastatic tumors with lung origin, ADC value of 1.009 ± 0.03820 ($\times 10^{-3}$ mm/s) tumors with liver and breast origin, and ADC value of 1.556 ± 0.03500 ($\times 10^{-3}$ mm/s) tumors with colon and prostate origin. Conclusion: According to our results, DWI MRI as an imaging biomarker can determine the origin of the brain metastatic tumors, so that we can help patients and physicians in terms of time, financial and choice of the best treatment method.

کلمات کلیدی:

Brain; Magnetic Resonance Imaging

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