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Comparative investigation of different sequences of Magnetic Resonance Imaging such as FLAIR, T2WI and PDWI in detection of Multiple Sclerosis patients referred to Magnetic Resonance Imaging Department of Imam Khomeini Hospital, Urmia, Iran

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Introduction: Multiple Sclerosis is the most common neurologic disorder that affects the CNS with an inflamma- tory demyelinating process and the most frequent cause of disability in young people. Diagnosis of multiple sclerosis disease is based on observation, neurologic examination and para clinical assays. Obviously Magnetic Resonance Imaging imaging changes the approach to the disease and it is the selective modality for diagnosis, monitoring and prognosis assessment. These years Multiple Sclerosis is diagnosed and treated with the use of Magnetic Resonance Imaging tech- nique. We have several studies about Multiple Sclerosis and its correlation with Magnetic Resonance Imaging. Since the Multiple Sclerosis plaques have different importance in various era (such as peri-ventricular, centrum semi-ovale, corpus callosum, ventricles and spine). Thus one Multiple Sclerosis plaque in infra tentorium and 9 peri-ventricular have the same value and in various era. T1, T2, FLAIR, PD and STIR have different sensitivities in diagnosis of Multiple Sclerosis; for example normal spine Magnetic Resonance Imaging in T2 and FLAIR sequences may show heterogeneous lesion by STIR sequence. We were encouraged to evaluate the relation of Multiple Sclerosis plaques and difference of their detectivness with different sequences.

Methods: We compared 50 Multiple Sclerosis patients Magnetic Resonance Imaging images in FLAIR, T2WI, PDW1 sequences with radiologist guidance and evaluated the correlation of the Magnetic Resonance Imaging findings with sex and age of those patients.

Results: We found a significant difference between sex and PDWI Magnetic Resonance Imaging sequences (P value = 0.001). There were no significant difference between other Magnetic Resonance Imaging sequences (FLAIR and T2WI) and age or sex.

Conclusion: Based on our study, PDWI Magnetic Resonance Imaging sequences is superior than FLAIR or T2WI sequences in detection of Multiple Sclerosis specific plaque in cerebellum.