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MRI Findings in Children with Intrac Table Epilepsy Compared to Children with Medical Responsive Epilepsy

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Abstract : Objective: Epilepsy is a common brain disorder characterized by a persistent tendency to develop in neurological, cognitive, and psychological contents. Magnetic Resonance Imaging (MRI) is a neuroimaging test facilitating the detection of structural epileptogenic lesions. This study aimed to compare the MRI findings between patients with intractable and drug-responsive epilepsy. Material & methods: This case-control study was conducted from 2007 to 2019. The research population encompassed all 1-16- year-old patients with intractable epilepsy referred to the Shafa Neuroscience Center (n=72) (a case group) and drug-responsive patients referred to the pediatric neurology clinic of Baqiyatallah Hospital (a control group). Results: There were 72 (23.5%) patients in the intractable epilepsy group and 200 (76.5%) patients in the drug-responsive group. The participants' mean age was 6.70 ±4.13 years, and there were 126 males and 106 females in this study Normal brain MRI was noticed in 21 (29.16%) patients in the case group and 184 (92.46%) patients in the control group. Neuronal migration disorder (NMD)was also exhibited in 7 (9.72%) patients in the case group and no patient in the control group. There were hippocampal abnormalities and focal lesions (mass, dysplasia, etc.) in 10 (13.88%) patients in the case group and only 1 (0.05%) patient in the control group. Gliosis and porencephalic cysts were presented in 3 (4.16%) patients in the case group and no patient in the control group. Cerebral and cerebellar atrophy was revealed in 8 (11.11%) patients in the case group and 4 (2.01%) patients in the control group. Corpus callosum agenesis, hydrocephalus, brain malacia, and developmental cyst were more frequent in the case group; however, the difference between the groups was not significant. Conclusion: The MRI findings such as hippocampal abnormalities, focal lesions (mass, dysplasia), NMD, porencephalic cysts, gliosis, and atrophy are significantly more frequent in children with intractable epilepsy than in those with drug-responsive epilepsy.

Keywords : magnetic resonance imaging, intractable epilepsy, drug responsive epilepsy, neuronal migrational disorder
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