Immune-Mediated Limbic Encephalitis—Tip of the Iceberg in Childhood Autoimmune Epilepsy

The typical presentation of limbic encephalitis is seizures, memory impairment, confusion, alteration of consciousness, and changes in the medial temporal lobes on MRI.1 Corsellis et al reported three adult patients with carcinoma who displayed variable memory disturbance and limbic encephalitis and who were confirmed by postmortem pathology of brain in 1968.2 Immune-mediated limbic encephalitis is divided into paraneoplastic limbic encephalitis and nonparaneoplastic limbic encephalitis.3,4 Notably, pediatric cases of limbic encephalitis are increasingly recognized by pediatric neurologists.5

Recently, Chou et al reported 10 cases of childhood limbic encephalitis in Taiwan who received a comprehensive study of antineuronal autoantibodies, including antibodies against intraneuronal antigens (paraneoplastic antigens, e.g., amphiphysin, Ma2, Hu, Ri, Yo, and GAD), neuronal surface proteins (Glutamate receptors, GABAa receptors, and VGKCs), and others.6 Among them, the antibodies against GAD and amphiphysin are highlighted in this article.

GAD plays an important role in novel guidelines for the identification of autoimmune epilepsy in children.7 It is noteworthy that 30% of antibodies against GAD are revealed in this report.6 Antibodies against amphiphysin are predominantly detected in patients of either breast tumors or small cell lung carcinomas and may be associated with stiff-person syndrome, myelopathy and myoclonus, encephalomyelitis, and sensory neuropathy, but not with the limbic encephalitis.8 Interestingly, three of 10 children presenting limbic encephalitis were detected with antibody against amphiphysin and seizure responded to long-term oral steroid in one patient. The detection of specific onconeural autoantibodies may hint at underlying cancer in adults, but these are rare in young children.9 Similarly, all these 10 cases had no neoplasms to date. Nevertheless, the relationship between antibody against amphiphysin and progressive underlying neoplasm should be investigated extensively and longitudinally in childhood patients who present with limbic encephalitis.

Recently, Hacohen Y et al reported on three children presenting with limbic encephalitis with elevated antithyroid antibodies who did not respond to corticosteroids alone and required more aggressive immunotherapy.10 In Chou’s report, three cases proved to be ANA positive; however, thyroid antibodies seem not to have been examined. Accordingly, thyroid antibodies may be considered as a marker in steroid-resistant patients with limbic encephalitis. Although evidence of autoantibodies in immune-mediated limbic encephalitis has been growing, this is still only the tip of the iceberg for childhood limbic encephalitis, which may be attributed to autoimmune epilepsy.

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References

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