

Central Nervous System Neurotoxicity Associated with Nelarabine in T-cell Acute Lymphoblastic Leukemia

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Abstract

Nelarabine, a prodrug of arabinosylguanine has lineage-specific toxicity for T lymphoblasts and is used to treat refractory or relapsed T-cell acute lymphoblastic leukaemia (T-ALL) and T-cell lymphoblastic lymphoma patients. The most commonly observed adverse effects associated with nelarabine are mainly haematological i.e., neutropenia, anaemia, and thrombocytopenia. Additionally, neurological, and gastrointestinal toxicities have been reported. Neurotoxicity associated with nelarabine is rare. Here, we presented a young adult patient diagnosed with T-ALL who experienced a nucleus caudatus infarction, and toxic leukoencephalopathy (TL) during treatment with nelarabine. Computed tomography and magnetic resonance imaging have shown periventricular and nucleus caudatus abnormalities. Radiological findings suggested TL and acute infarct of right nucleus caudatus. After high-dose steroids, intravenous immunoglobulin, and support treatment, his neurologic symptoms disappeared except for mild peroral numbness. However, radiological sequelae persisted despite clinical improvement. Physicians involved in the care of these patients who use nelarabine should be aware of the fact that cerebral toxicity of the nelarabine may occur especially in the presence of predisposing factors. It is crucial to monitor closely those patients receiving nelarabine and also those who have additional predisposing factors for neurotoxicity.

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