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Correspondence

Reversible Parkinsonism induced by acute exposure glyphosate

Letter to the editor:

On October 16, 2017, a previously healthy 58-year-old woman with a one day generalized headache without visual change came to be evaluated and was found to have a normal cranial MRI and lab studies. Tramadol hydrochloride did not help her headache. She developed progressive slowness and tremor of 4 limbs and difficulty in walking over the next several days. Fifteen days later she presented with a mask face, bradykinesia, cogwheel rigidity, markedly stooped posture with reduced arm swing, and a rest tremor in all limbs. MRI scan of the brain was again normal. There was no known family history of neurological disorders. She denied medications or herbal preparations before these symptoms. However she had been spraying glyphosate for over 3 hours per day for the week before the symptoms without using protective equipment. Glyphosate-induced Parkinsonian syndrome was suspected. She then underwent treatment with ATP, pralidoxime iodide and scopolamine hydrobromide and the headache and parkinsonism completely disappeared.

Glyphosate, one of the most commonly used herbicides worldwide, has been considered as minimally toxic to humans. The clinical picture of severe glyphosate poisoning is manifested by gastroenteritis, respiratory disturbances, altered mental status, hypotension that is refractory to treatment, renal failure, and shock.

To our knowledge, reports on Parkinsonism induced by acute exposure to glyphosate are few. In 2001, Barbosa et al. [1] reported a case of a patient who developed symmetrical Parkinsonism a month after spraying glyphosate without wearing protection. A year later, he developed slow-resting tremor in the left hand and arm. In 2011, Gang Wang et al. [2] reported a case of Parkinsonism resulting from chronic occupational exposure to glyphosate. Our patient developed symmetrical Parkinsonism a week after the initial exposure to glyphosate. The headache and Parkinsonism completely disappeared after treatment with ATP, pralidoxime iodide and scopolamine hydrobromide. This report is the first case of reversible Parkinsonism induced by acute exposure to glyphosate.

Glyphosate exposure has been linked to Parkinsonism, but the

underlying mechanism is unclear. Glyphosate may induce cell death via autophagy or apoptotic pathways, and the beclin-1 gene may be involved in both pathways [3].

Acute exposure to glyphosate can be associated with acute headache and parkinsonism, and in this case improved after treatment with ATP, pralidoxime iodide and scopolamine hydrobromide. Although reversible Parkinsonism induced by acute exposure to glyphosate is rare, information on exposure and physical examination must be determined to aid in differential diagnosis and avoid delays in treatment initiation.

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