On the cases of parkinsonism possibly related with glyphosate exposure

Sobre los casos de parkinsonismo posiblemente relacionado con exposición a glifosato

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Over the years the evidence of adverse effects due to glyphosate exposure has increased. While results are not yet conclusive, evidence suggests that parkinsonism can be a neurological event associated with glyphosate exposure[1]. There are four cases described in specialized scientific journals. The first one reported an accidental spray one month before the onset of symptoms[2]; the second case was an occupational exposure during three years in a chemical factory[3]; the third case reported an exposure >3 hours/day during the week prior to the onset of symptoms[4], and the fourth, an attempted suicide with glyphosate four years before[5].

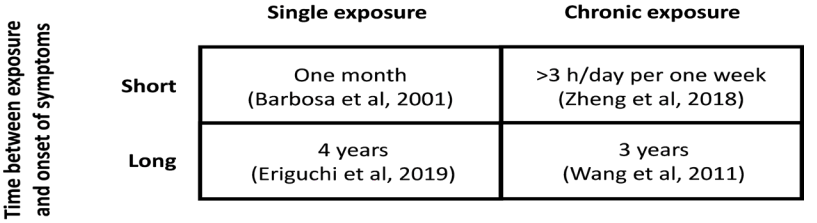

Figure 1. Different ways of exposure to glyphosate among cases of parkinsonism previously reported.

There are large differences among these cases in the way of exposure and the latency period, the time between exposure and onset of symptoms (see Figure 1), indicating weak evidence regarding the natural history of the disease. This inconsistent evidence contrasts with a recently new case of parkinsonism possibly associated with glyphosate exposure, which was widely released in the Colombian and international media[6,7]. The individual is a 58-year old retired police who worked in the anti-narcotics group supporting the glyphosate aerial spraying of illicit crops (coca and poppy) in different Colombian regions. For more than 15 years he had occupational exposure to glyphosate without personal protection elements, until he retired at 42 years of age due to health problems. The initial signs were tremors that allowed medical professionals to make the diagnosis of juvenile parkinsonism. Due to his debilitating disability and intense pain, he decided to seek euthanasia. The intervention was completed on September 26, 2022, and for that reason the case was in the public spotlight. Although this case has not been reported in scientific documents (and probably never will be), to the best of our knowledge, it is the best evidence that may associate glyphosate exposure with the occurrence of premature parkinsonism. Furthermore, there are at least three additional coworkers with similar symptoms which are under study.

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These five cases relating exposure to glyphosate and parkinsonism highlight the fact that case reports can generate causal hypotheses but, at the same time, be a source of etiological falsehood. In case reports with potential new environmental agents, it is recommended that a possible causal mechanism be considered. Can parkinsonism occur after a single high-intensity exposure to glyphosate, or can it occur only after chronic exposure? Answers to these types of questions should be explicitly expressed by the authors of case reports. Due to the special characteristics of exposure to glyphosate in aerial spraying activities of crops for illicit use in Colombia (very high and chronic exposure)[8], this occupational group is of special interest in future epidemiological studies.

Undoubtedly, rigorous, and independent studies are required to explore the association between exposure to glyphosate and parkinsonism. The context of crops for illicit use in Colombia continues to show serious adverse effects on human health and the environment, which require intersectoral management of social determinants. This case with obvious chronic exposure opens the door to the identification of possible unidentified long-term effects, which are not part of the current environmental and health impact assessments.

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