

A Case Report on Glyphosate Poisoning

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Abstract:

Glyphosate is the most commonly used broad-spectrum nonselective herbicide in the world. It is believed that the surfactant polyoxyethylene amine contributed to cardiotoxicity and the separation of oxidative phosphorylation, which resulted in toxicity (POEA). From asymptomatic to fatal, herbicide exposure encompasses a wide range of clinical signs and symptoms. Because there is no remedy, glyphosate toxicity is treated with vigorous supportive care. A 69-year-old female patient is shown here, who consumed pesticides in an attempt to commit suicide. Gastric lavage and intravenous fluids were used at first. The patient experienced acute lactic acidosis, hypotension, and respiratory distress that required hospitalization within two hours of presentation. She also had aspiration pneumonia, hypokalemia, hypernatremia, and acute respiratory distress syndrome. Our patient was seriously unwell with many unfavorable prognostic markers, but he recovered with prompt, vigorous supportive care. Finally, this case study illustrates that glyphosate intoxication is potentially fatal. This pesticide toxicity has no known cure. With aggressive supportive therapy and close attention to complications, patient subsides the symptoms.

Keywords: Gastric lavage, glyphosate, intravenous fat emulsion, poisoning, surfactant herbicide

Introduction:

The most extensively used nonselective broad-spectrum herbicide in the world is glyphosate. It is commercially available in India as a water-based formulation that contains 15% polyoxyethylene amine and 41% isopropyl amine salt of glyphosate (POEA). Toxicity is believed to result from the uncoupling of POEA-mediated cardiotoxicity and oxidative phosphorylation. ARDS, arrhythmias, renal failure, and gastrointestinal distress are only a few examples of toxic symptoms, and death. This pesticide toxicity has no antidote. Thus the only treatment is vigorous supportive therapy [1].

With timely supportive care, a case of glyphosate poisoning that led to ARDS, shock, and severe metabolic acidosis was effectively managed. Asymptomatic to fatal clinical symptoms of pesticide exposure are possible. The harmful effects of glyphosate have no permanent treatment. Therefore, the foundation of treatment is vigorous supportive therapy. We describe a 69-year-old female patient who ingested 500 ccs of Glycel® in a suicide attempt. More than 85 mL of the concentrated formulation will probably cause serious poisoning. Common digestive side effects include dysphagia, mouth, throat, and epigastric discomfort. Hepatic and renal dysfunction are common, and they are frequently caused by a reduction in organ perfusion [2].

This case report details the case of a patient who had been complaining of excessive amounts of vomiting, abdominal cramps, blue lips and fingernails, and respiratory distress.

Case Presentation:

Patient Information:-

A 49-year female patient was admitted with the primary symptom of excessive amounts of vomiting, abdominal cramps, blue lips, fingernails, and respiratory distress. All diagnostic procedures are completed, such as blood tests, enzyme-linked immunosorbent assay testing (ELISA), and urine testing. The patient was conscious but disoriented, blood pressure was 110/70 mmHg and a pulse rate is 116b/m.

The primary source of concern and signs and symptoms:

On 5/12/2022, the patient visited the tertiary rural Hospital seen as the primary chief complaint of abdominal cramps, excessive amounts of vomiting, blue lips and fingernails, and respiratory distress.

Medical and psychological, and family history:

In a case of glyphosate poisoning, following the general physical examination and investigation, a diagnosis was made. The patient has no previous medical or surgical history. A patient comes from a middle-class, nuclear household. She was not mentally stable and was confused about the date, time, and place. The patient has a good relationship with her family members.

The habits:The patient does not have any bad habits.

Relevant previous intervention with a positive outcome:

There has been no mention of this.

Clinical Findings

Critical clinical findings and significant physical examination:

Glyphosate poisoning is an indication of abdominal cramps, excessive amounts of vomiting, blue lips and fingernails, and respiratory distress.

Timeline:

A present case has a history of stabilizing the patient if they glyphosate poisoning of abdominal cramps, excessive amounts of vomiting, blue lips and fingernails visit on city hospital Yavatmalin November 2021 for management. A blood test, urine test, and enzyme-linked immunosorbent assay testing were done, and the diagnosis was found glyphosate poisoning. After that go through the Tertiary Rural Hospital on OPD.

Diagnostic Evaluation:

Diagnostic method: The patient history collection and physical examination is done. The amount of HB was reduced. The number of red blood cells dropped. Blood tests, urine tests, and enzyme-linked immunosorbent assay testing were performed.

Difficulties in Diagnosis:

During the diagnostic evaluation, the patient has no difficulties.

After a physical examination and this investigation diagnosis was made:

Glyphosate poisoning is diagnosed using blood tests; urine tests are all options. The patient is diagnosed using enzyme-linked immunosorbent assay testing(ELISA).

The prognosis:The prognosis was good in this case.

Therapeutic Intervention:

Noradrenaline 100 mg route intravenous for 30-minute medical treatment provided by the patient. Pan 40 mg supplied by the patient. A potassium supplement was also provided to the patient.

Unexpected and unfavourable incident:There were no negative side effects reported.

Outcomes:

The symptoms subsided and patient recovered after rigorous supportive treatment.

Discussion:

Glyphosate is an all-purpose, nonselective herbicide. It is sold as an aqueous solution with at least 41% isopropyl amine salt of glyphosate as a surfactant and 15% polyoxyethylene amine (POEA). The shikimic acid pathway, which is absent in humans but present in plants, is how it functions. Although the precise cause of this herbicide's toxicity in people is unknown, it is believed to be related to cardiotoxicity brought on by the surfactant POEA and oxidative phosphorylation uncoupling. Despite having a structure similar to that of organophosphates (OP), neither it nor the symptoms it causes are anticholinergic. [3-10]

Overall, a close examination of Samsel and Seneff's and their commentators' methodology exposes a serious shortcoming. These writers utilize a syllogistic deductive reasoning method that is made up of two or more propositions and leads to a conclusion. The first claim often refers to the characteristics of glyphosate, while the second claim deals with human physiology (e.g., sperm motility depends on Man). Samsel and Seneff deduce that glyphosate is causally related to the genesis of each of these pairings of assertions. [11-17]

Poisoning can occur through ingesting, inhaling, or coming into touch with the skin or eyes. Pesticide exposure can have clinical effects that range from being asymptomatic to deadly. Temporary digestive issues, oral ulcers, esophagitis, lactic acidosis, gastrointestinal bleeding, hypotension necessitating vasopressor support, renal failure necessitating replacement therapy, respiratory failure necessary for mechanical ventilation, arrhythmias, cardiac arrest, and death are a few symptoms that may appear. Death occurs in between 3.2 and 29.3 percent of cases. Poor prognosis and death are related with aberrant X-rays, respiratory distress necessitating intubation, hypotension need vasopressor support, lactic acidosis, a prolonged QT interval, raised creatinine, high alanine aminotransferase (ALT), and hyperkalemia.[17-25]

For instance, they conclude that glyphosate may help partially explain the rising incidence of infertility and birth abnormalities since it is a metal chelator and sperm motility depends. By applying this line of thinking to a variety of bodily processes, they contend that autism, Alzheimer's disease, Parkinson's disease, anxiety disorder, osteoporosis, inflammatory bowel disease, renal lithiasis, osteomalacia, cholestasis, thyroid dysfunction, and infertility are all caused by deregulation of Man utilization in the body as a result of glyphosate's metal chelating properties. [26]

It is well recognized that underestimating a product's toxicity can have a terrible impact on public health. Although it has been claimed by the industry and regulatory organizations that glyphosate is safe even at relatively high daily intake levels (for example, 1.75 mg/kg BW/day in the US), significant flaws in this analysis have been found and must be filled in before a firm conclusion about its safety can be made.

The advanced age, 500 mL consumed, abnormal X-rays, respiratory distress necessitating intubation, hypotension needs vasopressors, lactic acidosis, and a protracted QT interval of our patient were just a few of the poor prognostic indicators that were present in him. The majority of patients will experience a negative outcome given these terrifying warning variables. With prompt supportive treatment, however, the patient made a full recovery.

Lastly, this case study demonstrates that glyphosate toxicity carries a risk of death. There is no recognized treatment for this chemical poisoning. With aggressive supportive therapy and close attention to sequelae, even seriously ill patients with many poor prognostic indicators can be saved.

Conclusion:

Glyphosate poisoning may be fatal in its conclusion. This pesticide toxicity has no known cure. Even severely sick patients with several unfavorable prognostic indicators can be rescued with vigorous supportive treatment and meticulous complication monitoring.

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