LETTER to EDITOR

Intentional Poisoning with the Pyrethroid Compound Cyfluthrin: A Unique Case of Fly-Repellent Spray Ingestion

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Dear Editor,

Synthetic pyrethroid compounds are widely used worldwide, including in Turkey, for their insecticidal and insect-repellent properties in households as well as in veterinary, agricultural, and industrial fields [1]. They are also employed in the treatment of scabies and lice in humans [2]. These compounds, which are widely used as insecticides, are considered to have toxicological profiles with high selectivity and toxicity to insects but low toxicity to humans. Nevertheless, cases of human poisoning have been reported through occupational exposure, intentional ingestion, or inhalation [3].

Pyrethroid compounds are categorized into type 1 and type 2 based on their biochemical properties and associated clinical effects [3]. Cyfluthrin, one of the more potent type 2 synthetic pyrethroid compounds, is present in some products used against pests, insects, and flies in Turkey [4]. Some of these products are available in aerosol spray form.

We present the case of a 38-year-old female patient who arrived at the emergency department (ED) after ingesting an insecticide spray produced by Johnson & Son, intended for domestic use. The patient sprayed the product into a glass, liquefied it, and ingested it for suicidal purposes. To our knowledge, intentional poisoning with the pyrethroid compound Cyfluthrin has not been documented in the literature. This case is unique due to the unusual method of exposure, which involved ingesting a spray formulation.

CASE REPORT

A 38-year-old woman was admitted to the emergency department of Ankara Training and Research Hospital after an attempted suicide. She had sprayed an aerosol fly-repellent product into a glass, liquefied it, and ingested it approximately three hours before presentation.

At the time of admission, the patient complained of nausea, dizziness, and increased salivation, but her vital signs were stable. Her medical history was unremarkable except for the use of duloxetine for depressive symptoms over the past 6-7 months.

Physical examination revealed bilateral mydriatic pupils with positive light reflex and increased salivation. Cardiovascular examination showed no tachyarrhythmia or bradyarrhythmia. Neurological examination indicated a Glasgow Coma Scale score of 15, clear consciousness, intact coordination, and full orientation. The patient exhibited no motor deficits but had generalized tremors, particularly in her hands.

Initial laboratory findings, including complete blood count, liver and renal function tests, blood gas analysis, cardiac markers, and serum pseudocholinesterase levels, were within normal limits. Electrocardiography revealed normal sinus rhythm with no additional pathology.

The patient underwent whole-body decontamination with soapy water, with particular attention given to her hair and mouth area. She was monitored in the observation unit and received symptomatic treatment and intravenous (IV) fluid therapy.

Upon retrieving the packaging of the ingested product, Cyfluthrin was identified as the active ingredient. Atropine (2 mg total dose) was administered to manage hypersalivation, and IV benzodiazepine was given to control generalized tremors. Symptomatic treatment and IV fluid therapy continued, and the patient was discharged from the ED 36 hours later with stable vital signs, no active complaints, no complications, and a recommendation for follow-up in a psychiatry outpatient clinic.

DISCUSSION

Considering the widespread availability of pyrethroid-containing insect repellent and insecticidal products in households, poisoning cases are not uncommon. Acute pyrethroid poisoning in humans usually occurs through skin contact, inhalation of spray formulations, or oral ingestion. Common symptoms include facial paresthesia, pruritus, skin burning, nausea, vomiting, and, in severe cases, muscle fasciculations, seizures, coma, pulmonary edema, and hemorrhage [1,4,5]. This case is particularly noteworthy due to the unusual route of exposure, wherein the aerosolized product was liquefied and ingested for self-harm.

Pyrethroid compounds are classified into two types based

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on biochemical properties and acute symptomatology observed in animal studies. Type 1 pyrethroids typically cause fine tremors and reflex hyperexcitability, whereas type 2 pyrethroids, such as Cyfluthrin, are associated with choreoathetosis, hypersalivation, coarse tremors, and increased extensor tone [3]. Our patient exhibited coarse tremors, nausea, dizziness, and increased salivation, consistent with type 2 pyrethroid poisoning.

Atypical findings can also be observed. In a study involving 59 ED patients in Korea, nearly half presented with atypical symptoms such as decreased consciousness, respiratory failure requiring mechanical ventilation, acute renal failure, and hypotension; two patients died [6]. Acute respiratory distress syndrome due to pyrethroid poisoning has also been reported by George et al. [7]. Pyrethroids are sometimes combined with organophosphorus compounds, which can increase human toxicity. Emergency physicians should be particularly cautious when dealing with counterfeit or unregulated pesticide products, as these may contain additional toxic substances, including organophosphates.

Treatment for pyrethroid poisoning is mainly supportive, as no specific antidote exists. Although washing the skin with soapy water is recommended, there is no clear evidence that it significantly reduces toxicity. Activated charcoal may be considered in patients presenting within the first hour of ingestion, but gastric lavage is generally avoided due to the high risk of aspiration pneumonia [3]. Benzodiazepines are recommended for seizure control. Atropine may be used to reduce hypersalivation, but caution is required as it can lower the seizure threshold in acute pyrethroid poisoning [8]. In our patient, atropine was initially administered with a positive response, and no additional doses were required.

CONCLUSION

Several reports, including this one, suggest that pyrethroid compounds may not be as safe as previously assumed. Given their widespread use as insecticides and insect repellents, it is crucial for emergency physicians to recognize their potential toxicity in humans.

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