Toxicity evaluation of α-pyrrolidinovalerophenone (α-PVP): results from intoxication cases within the STRIDA project

Context
An increasing number of new psychoactive substances (NPS) of different chemical classes have become available through marketing and sale over the Internet. This report from the Swedish STRIDA project presents the prevalence, laboratory results, and clinical features in a series of intoxications involving the stimulant NPS α-pyrrolidinovalerophenone (α-PVP), a potent dopamine re-uptake inhibitor, over a 4-year period.

Study design
Observational case series of consecutive patients with admitted or suspected intake of NPS presenting to hospitals in Sweden from 2012 to 2015.

Patients and methods
In the STRIDA project, blood and urine samples are collected from intoxicated patients with admitted or suspected intake of NPS or unknown drugs presenting to hospitals over the country. Analysis of NPS is performed by mass spectrometry multicomponent methods. Clinical data are collected when caregivers consult the Swedish Poisons Information Centre.
(PIC), and retrieved from medical records. The severity of poisoning is graded retrospectively using the Poisoning Severity Score (PSS). The inclusion criteria for this study included absence of other stimulants than α-PVP.

**Results**

During the 4-year study period, 23 intoxications were originally coded as "α-PVP related" out of a total 3743 NPS-related inquiries (0.6%) at the PIC. The present study covered 42 analytically confirmed cases in which α-PVP was the only stimulant detected. The age range of patients was 20–58 (median 32) years, of which 79% were males. The α-PVP concentration in serum was 4.0–606 (median 64; n = 42) ng/mL and 2.0–41,294 (median 1782; n = 25) ng/mL in urine. There was no statistically significant association between the serum α-PVP concentration and urinary α-PVP/creatinine ratio in 25 cases, where both sets of data were available. In 14/42 (33%) cases, α-PVP was the only psychoactive substance identified. In the remaining cases, additional substances comprised opioids, benzodiazepines, and ethanol. The main clinical manifestations were tachycardia (80%), agitation (70%), hypertension (33%), hallucinations (20%), and delirium (18%). Classification of poisoning severity yielded 25 (60%) moderate (PSS 2), 7 (17%) severe (PSS 3), and 2 fatal cases (PSS 4).

**Conclusions**

In analytically confirmed α-PVP intoxication cases involving no other stimulant drugs, the urine and serum concentrations showed high variability. The clinical features were consistent with a severe sympathomimetic toxidrome. The results further demonstrated that α-PVP prevailed as a drug of abuse after being classified as a narcotic substance, and despite a high incidence of severe poisonings and fatalities. However, the low prevalence of α-PVP cases registered at the PIC suggested that many were unaware of the actual substance they had taken.

Full text available from: [http://dx.doi.org/10.1080/15563650.2016.1190979](http://dx.doi.org/10.1080/15563650.2016.1190979)

**Toxicity of soluble film automatic dishwashing products as reported to the United Kingdom National Poisons Information Service 2008–2015**


**Introduction**

Soluble film automatic dishwashing tablets, unlike their traditional counterparts, require no removal from an outer protective wrapper prior to use. Instead, the tablets are enclosed by a water-soluble polyvinyl alcohol film and are loaded straight into the dishwashing machine. They most commonly contain a source of hydrogen peroxide (often as sodium percarbonate) and non-ionic surfactants. Other constituents in some formulations include sodium carbonate, sodium tripolyphosphate and sodium silicate, which reduce water hardness. The pH once dissolved in water is alkaline.

**Objective**

To determine the toxicity from exposure to soluble film automatic dishwashing tablets.

**Methods**

Telephone enquiries to the United Kingdom National Poisons Information Service regarding soluble film automatic dishwashing products were analysed retrospectively for the period January 2008 to December 2015.

**Results**

There were 498 enquiries relating to 488 patients. Almost all exposures occurred in the home (98.4%) and involved children aged ≤5 years (92.8%). Exposure occurred mainly as a result of ingestion alone (n = 470, 96.3%); eye contact alone (n = 9, 1.8%) and exposures...
involving multiple routes (ingestion with skin or eye contact; n = 9, 1.8%) made up the remaining cases. The majority of patients were asymptomatic following exposure (n = 325, 67.4%). The most common feature following ingestion was vomiting which occurred in 121 of 474 cases (25.5%) where clinical data were available. Nausea (n = 8, 1.7%) and coughing (n = 6, 1.3%) were also reported; three patients developed stomatitis and another five developed a rash where ingestion alone was considered to be the sole route of exposure. Ocular exposure to the tablet contents resulted in blurred vision, eye pain or conjunctivitis in seven of ten patients.

**Conclusion**

Ingestion of a soluble film automatic dishwashing tablet rarely resulted in clinically significant symptoms, which is surprising given the potential hazard of the ingredients. Hence, it seems probable that the amount of material actually ingested was very small or that most was spat out.

Full text available from: [http://dx.doi.org/10.1080/15563650.2016.1209762](http://dx.doi.org/10.1080/15563650.2016.1209762)

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**Characterization of edible marijuana product exposures reported to United States poison centers**


**Context**

Edible marijuana products are sold as brownies, cookies, and candies, which may be indistinguishable from counterparts without marijuana and are palatable to children and adults. The consumption of an entire product containing multiple dose-units may result in overdose.

**Objective**

To characterize edible marijuana exposures reported to US poison centers with subgroup analysis by age.

**Methods**

We analyzed single substance, human exposure calls coded to marijuana brownies, candies, cookies, beverages, or other foods reported to the National Poison Data System from January 2013 to December 2015. Calls were analyzed by state, age, gender, exposure route, clinical effect, therapies, and level of healthcare facility utilization.

**Results**

Four-hundred and thirty calls were reported: Colorado (N = 166, 1.05/100,000 population/year) and Washington (96, 0.46) yielded the highest number of exposures. Three hundred and eighty-one (91%) calls occurred in states with decriminalized medical/recreational marijuana. The number of calls increased every year of the study. The most common age groups were: ≤5 years (N = 109, 0.15/100,000 population/year) and 13-19 (78, 0.09). The most frequent clinical effects were drowsiness/lethargy (N = 118, percentage = 43%), tachycardia (84, 31%), agitated/irritable (37, 14%), and confusion (37, 14%). Children ≤5 years have more drowsiness/lethargy, ataxia, and red eye/conjunctivitis. No deaths were reported. The most common therapies administered were intravenous fluids (85, 20%), dilute/irrigate/wash (48, 11 %), and benzodiazepines (47, 11%). Three patients (ages 4, 10, and 57 years) received intubation. 97 (23%), 217 (50%), and 12 (3%) calls were managed at home, treated/released, admitted to a critical care unit, respectively.

**Discussion**

Although most clinical effects are minor, ventilatory support may be necessary for children and adults. We speculate the increasing exposures may be related to a combination of delayed absorption kinetics of Δ9-tetrahydrocannabinol, lagging packaging regulations, increased
accessibility in decriminalized states, and increased familiarity of poison center specialists with edible product codes.

Conclusions
Edible marijuana exposures are increasing and may lead to severe respiratory depression.

Full text available from: http://dx.doi.org/10.1080/15563650.2016.1209761

**Delays during the administration of acetylcysteine for the treatment of paracetamol overdose**

Abstract and full text available from: http://dx.doi.org/10.1111/bcp.13063

**Idarucizumab for reversal of dabigatran**

Abstract and full text available from: http://dx.doi.org/10.1177/1060028016659504

**Effects of neonicotinoid pesticide exposure on human health: a systematic review**
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**Hypokalemia is a biochemical signal of poor prognosis for acute paraquat poisoning within 4 hours**

Abstract and full text available from: http://dx.doi.org/10.1007/s11739-016-1491-x

**Acute illness associated with exposure to a new soil fumigant containing dimethyl disulfide — Hillsborough County, Florida, 2014**

Abstract and full text available from: http://dx.doi.org/10.1080/1059924X.2016.1211574
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**MANAGEMENT General**


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**Bioscavengers**


**Chelating agents**


**Hyperbaric oxygen therapy**


**Lipid emulsion therapy**


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**Diphenhydramine**


**Levocetirizine**


**Antimarial drugs**


**Antineoplastics**


**Anthracyclines**


**Capecitabine**


**Sertaconazole**

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**Antifungal drugs**

**Ketoconazole**


**Levocetirizine**


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Substance abuse
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