



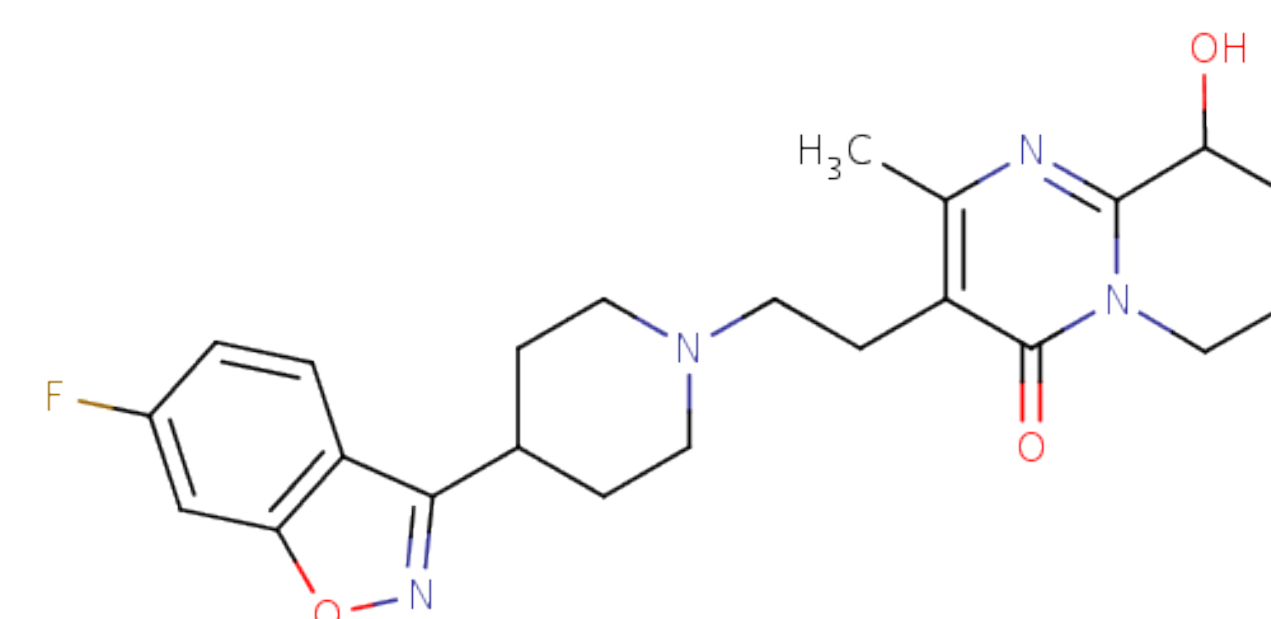
# ACCIDENTAL INGESTION OF PALIPERIDONE (INVEGA®) IN CHILDREN: A CASE SERIES.

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## DESCRIPTION OF 3 CASES OF ACCIDENTAL INGESTION OF PALIPERIDONE IN CHILDREN BETWEEN THE AGE OF 2 AND 6.

### PALIPERIDONE: DESCRIPTION AND PLACE IN THERAPY

Paliperidone, also named 9-hydroxyrisperidone, is the major active metabolite of the atypical antipsychotic Risperidone. It is reported to be an antagonist at dopamine D(2), serotonin (5-HT(2)), adrenergic (alpha(1) and alpha(2)), and histamine (H(1)) receptors. Paliperidone is used in the treatment of schizophrenia and schizoaffective disorders in adults and adolescents. (Ref 1)



#### CASE 1:

A 2-year-old girl (11,1kg) was brought to the Emergency Department 2 hours after accidental ingestion of 6 extended-release 9 mg Invega® tablets (Paliperidone 9 mg/tablet). Clinical examination was normal on admission. After a few hours observation in the ED, the child became somnolent and suddenly lost consciousness. A tachycardia at 170/min was also noted. She was immediately transferred to the Intensive Care Unit and intubated. Extubation was only possible after 48 hours. The girl recovered uneventfully.

#### CASE 2:

A 6-year-old (18kg) boy was admitted in the Emergency Department for apathy and confusion of unknown origin. After a lumbar puncture and a CT scan the child was transferred to another hospital. On arrival, he presented somnolence, confusion, hypertonia (upper limbs in flexion, lower limbs in extension, left torticollis), abnormal eye movements, slight neck stiffness, body temperature of 37°4 C and tachycardia at 155/min. Diagnosis of one slow release 6 mg Invega® tablet (Paliperidone 6 mg/tablet) ingestion was made when the child's sibling arrived in the Emergency Department with similar symptoms and the history of Paliperidone ingestion (see case 3). The child was observed in the Intensive Care Unit and the symptoms resolved in about 24 hours after admission. A toxicological analysis confirmed the presence of Paliperidone in the serum (45,3 ng/ml, therapeutic range 20-60 ng/ml).

#### CASE 3:

A 4-year-old boy, brother of case 2, was admitted in the Emergency Department for sleepiness and confusion, two hours after his brother's admission. His parents found a blister of Invega® slow release 6 mg tablets (Paliperidone 6 mg/tablet) in his pocket. Two tablets were missing. Each child had probably swallowed one 6 mg tablet. Invega® was the medication of the children's aunt.

On admission he presented hypotonia, confusion, miosis, tachycardia at 140/min. The child was observed during 24 hours in the Intensive Care Unit. The symptoms resolved gradually. A toxicological analysis confirmed the presence of Paliperidone in the serum (673 ng/ml, therapeutic range 20-60 ng/ml).

### DISCUSSION

Paliperidone, the active metabolite of Risperidone, can cause significant poisoning in young children, even after intake of a single 6 mg tablet. The toxicity profile of Paliperidone is similar to its prodrug Risperidone: tachycardia, central nervous system depression and extrapyramidal syndrome were the main symptoms observed.

In case 2 and 3, ingestion of a single 6 mg Paliperidone tablet resulted in somnolence, confusion, tachycardia, extrapyramidal disorders (case 2), miosis (case 3).

In case 1, ingestion of 54 mg (4,86 mg/kg) was life-threatening with delayed coma and sudden respiratory depression. Intubation of the patient was necessary during 48h.

Levine M et al (Ref 4) described in 2011 a case of voluntary ingestion of 180 mg Paliperidone in a 14-year-old girl. One hour after ingestion, the only symptom was a pulse rate of 119 beats/min. About 5 hours post ingestion, she fell asleep and, 24 hours and 39 hours after ingestion, she developed 2 episodes of narrow complex tachycardia at 190 beats/min. Mild tachycardia persisted for nearly 90 hours post ingestion.

Because of the extended release formulation of Paliperidone, the first symptoms occur several hours after ingestion and last at least 24h. Prolonged observation is needed as symptoms may be delayed and CNS depression can suddenly occur.

#### PALIPERIDONE: PHARMACOKINETICS

Invega® tablets are extended-release tablets of Paliperidone. After a single oral dose, Paliperidone is gradually released from the tablet and the peak plasma concentrations occurs after about 24 hours. Paliperidone is 74% bound to plasma proteins. It is not extensively metabolized in the liver. About 59% of a dose is excreted unchanged in the urine. The elimination half-life is approximately 23 hours. (Ref 1, Ref 2, Ref 3)

### REFERENCES

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3. Moffat AC, Osselton MD and Woddop B, Clarke's Analysis of Drugs and Poisons, The Pharmaceutical Press, 2004.
4. Levine M et al. Paliperidone Overdose With Delayed Onset of Toxicity. Ann Emerg Med 2011; 58, 1: 80-82.



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