## ACHE inhibitors - intoxication

## Part I

An 18-year-old male was admitted to the emergency department after ingesting 100 mL of Ruscron insecticide in a suicide attempt. Although the patient appeared dull, gloomy and inactive, he was conscious and well oriented at admission. His blood pressure was 110/70 mm Hg, pulse rate was 110 bpm and other vital signs were normal. Laboratory findings were as follows: WBC 12000/uL; Hb 16 g/dL; Hct 49%; Plt 248.000/µL; neither liver and kidney function tests nor serum electrolytes showed any abnormalities. Based on his medical history the psychiatry department in the emergency unit diagnosed him as having major depression. The rest of his medical history was unremarkable.

1. What is the active principle of Ruscron?

2. What was the amount of active substance ingested?

3. What is the probable symptomatology of such intoxication?

4. Suggest suitable pharmacotherapy and other actions beneficial for patient.

## Part II

He underwent general antioverdose treatment including gastric lavage, activated charcoal and cathartics. During the follow up, his secretions increased and pupillary examination showed bilateral miosis. In addition to gastric lavage and standard therapy, intravenous atropine and pralidoxime (PAM) were administered as his plasma cholinesterase level was 2.7 U/mL, confirming the clinical diagnosis of organophosphate poisoning. In all, 1600 mg PAM and 32 mg atropine were administered over two days via intravenous infusion during which time the patient was noted to be agitated, confused, swearing intermittently, mumbling incoherently and trying to get out of his restraints. He also pulled out his nasogastric tube and intravenous lines. He presented hyperpyrexia (38 ºC) and tachycardia (120 bpm) but his laboratory tests were unremarkable. Psychiatric evaluation was requested a second time. He was also disoriented, and had problems with delayed recall, difficulty sustaining attention and delusions of persecution. Although he was able to follow simple commands, he was unable to cooperate in a formal mental status examination. According to these signs and symptoms he was diagnosed with delirium using the diagnostic and statistical manual, 4th (DSM-IV) criteria for delirium.

5. What is pralidoxime and what is its mechanism of action?

6. What is the cause of the present symptoms?

## Part III

Atropine and PAM were stopped and Zyprexa Velotab 10 mg (1-0-0) was given. Delirium regressed and his neurological examination was normal after 24 h. He was discharged from the hospital on the 7$^{th}$ day with an elevated plasma cholinesterase of 7 U/mL, and his psychiatric symptoms resolved without any neurological deficit in 15 days.

7. What is the active principle of Zyprexa? To which ATC group it belongs? What are the other members of this group and what are their indications?