CASE REPORT

Accidental poisoning with detomidine and butorphanol

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Abstract
This is a case report concerning a veterinarian who spilled detomidine and butorphanol on dermatitic hands while sedating a horse. This resulted in acute poisoning from which the patient spontaneously recovered with supportive management. Veterinarians often suffer from occupational dermatitis and handle strong sedatives with no gloves while working around unpredictable animals. Thus, this group is at risk of accidental self-poisoning from this method.

Key words Butorphanol; detomidine; drugs; farmers; poisoning; veterinarian; workers.

Case report

A 26-year-old female veterinarian was admitted to accident and emergency with sudden onset decrease in her conscious level, slurred speech and dry mouth, following attempted sedation of a horse.

After unsuccessfully attempting to sedate an unpredictable horse with intramuscular butorphanol and detomidine, the patient was suddenly overcome with a sensation of lightheadedness and became aware that her speech was becoming slurred. The patient was immediately driven to hospital by the horse's owner and had no recollection of this. The patient was sure no needlestick injury had been sustained. As is common in veterinary medicine, the patient was not wearing gloves while handling the sedative medications. The veterinarian denied any illicit drug use or recent consumption of alcohol. TOXBASE (an online poisons database; www.spib.axl.co.uk) was consulted.

On examination, the patient was drowsy, sweating and her pupils were constricted. Her Glasgow Coma Scale score on admission was 13/15. Her heart rate was bradycardic at 45 beats/min, but blood pressure was stable and oxygen saturations were within normal limits. Blood was seen on the patient’s hands, although there were no puncture marks, and this was felt likely to be horse blood. The patient also had signs of severe dermatitis on both hands, which were attributed to her occupation.

The patient had no past medical history of note, was taking the oral contraceptive pill and had no known drug allergies.

Blood results showed no significant abnormalities and electrocardiography demonstrated sinus bradycardia of 40 beats/min. Urine recreational drug screening was negative.

The patient was observed overnight and monitored with cardiac telemetry, which showed sinus rhythm throughout and her heart rate increased gradually to 70 beats/min at rest. The airway was maintained and no naloxone was required. The patient was asymptomatic and discharged in the morning.

Neither of the drugs used is volatile [1]. The patient had experienced needlestick injuries in previous clinical situations and was familiar with the sensation and was convinced no needlestick injury occurred. However, the author concedes it is impossible to be absolutely certain that a needlestick injury was not sustained, and her damaged skin made examination difficult. In the absence of any puncture marks on the patient’s hands and denial of any needlestick injury, it appears that accidental poisoning with veterinary tranquilliser absorbed through the patient’s dermatitic hands is the most likely diagnosis.

Discussion

Butorphanol is a morphinan-type synthetic opioid analgesic that exhibits partial agonist and antagonist activity at the μ-opioid receptor and agonist activity at the κ-opioid receptor [2]. It is a commonly used narcotic in veterinary medicine to relieve pain in animals, particularly horses. It is usually administered intravenously or intramuscularly. Administration in humans can give feelings of dissociation, lightheadedness, sweating and itchy skin when compared with equianalgesic doses of...
morphine [3]. Both morphine and butorphanol induce miosis in humans.

Detomidine is an alpha2-adrenergic agonist and is commonly used as a large animal sedative with analgesic properties. It is used to facilitate examination and surgical procedures often in conjunction with ketamine or an opioid equivalent such as butorphanol [4]. Detomidine can cause a reduction in heart rate and alteration of heart rhythm, an initial hypertension followed by a prolonged hypotension and a decrease in cardiac output and respiratory depression. It is a potent drug and recommended doses for sedation of animals are between 20 and 40 μg/kg (0.2–0.4 ml/100 kg)\(^3\). There are two previous reports of detomidine poisoning in humans. The first was a deliberate injection of detomidine 50 mg and butorphanol 100 mg in a 36-year-old man [5], who presented with decreased conscious level, required naloxone infusion and made a full recovery. The second case was an accidental self-injection of an unquantified amount of detomidine by an Irish farmer while attempting to sedate a bull. He required two 500 μg boluses of atropine and intravenous fluids to maintain his blood pressure and heart rate. He also made a full recovery [6]. There are no recorded cases of accidental poisoning with butorphanol and detomidine in which there was no injection and the drug was absorbed intradermally. When questioned, the patient insisted that wearing latex gloves whilst working with horses was likely to make them more difficult to handle and so they were never used. It appears that if this is common practice and the drug was absorbed through the dermatitic skin, then many vets are at risk from this occupational injury.

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Verbal consent for published case report recorded in medical notes at time of admission.

**Conflicts of interest**

None declared.

**References**