

TRAMADOL®.....Beyond its Beneficial Effects

A. Salmi*

Department of Medical and Surgical Emergencies, University Hospital Center Mustapha (Pr.M.Guerinik), Algiers, Algeria

*Corresponding author: Amine Salmi, Department of Medical and Surgical Emergencies, University Hospital Center Mustapha (Pr.M.Guerinik), Algiers, Algeria, Tel: 0663503399; E-mail: salmi_amine@yahoo.fr

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Abstract

Tramadol® (analgesic of the landing 2) is a centrally acting analgesic with a dual mode of action. Its analgesic efficacy is attributed to its partial affinity for the (μ) mu-opiate receptor and its inhibition of noradrenaline and serotonin reuptake. Acting in a synergistic manner and being more efficacious, Tramadol® is used worldwide for the treatment of moderate to severe acute or chronic pain. If psychotropics are not an exceptional one because of SIADH (syndrome Inappropriate secretion of antidiuretic hormone), analgesics are not usually. This is the case of Tramadol®. We report on this observation the case of a 22 year old patient hospitalized for poisoning Tramadol®, having presented, hyponatremia, hypoglycemia, rhabdomyolysis and left cardiac decompensation.

Keywords: Tramadol®; Hyponatraemia; Hypoglycemia; Rhabdomyolysis

Discussion

Tramadol, an analgesic with a low affinity to opioid receptors, inhibits the reuptake of norepinephrine and serotonin [1,2]. It stimulates the dopamine (D2) receptors and also inhibits the gamma amino butyric acid release in central nervous system [3,4]. It is also abused by opioid addicts. Tramadol overdose can induce Central nervous system and respiratory depression, tachycardia.

He is not usually considered as person in charge of a hyponatremia, contrary to psychotropics, which occupy a privileged part and in particular antidepressants, selective inhibitors of the recapture of the serotonin [5]. The therapeutic blood rates at the adult vary from 0,1 to 0,3 mg/l [6,7]. Toxic levels go of 1-2 mg/l, and the lethal concentration is considered as being superior to 2 mg/l [8]. In other words, is considered as toxic a dose of 500 mg [9]. The inhibition of the recapture of the noradrenaline and the increase of the liberation of the serotonin [10], explains the liberation of the ADH at the origin of the severe hyponatremia, and increase of the blood pressure, with left cardiac decompensation, was suspected after clinical examination and chest X-ray (Figure 1).

Confirmed by transthoracic echocardiography showing low left ventricular ejection fraction (45 %) outside of myocardial infarction or pericarditis. Hemodynamic support by inotropic drug infusion and diuretics was necessary. Left ventricular function normalised after 2 days of treatment allowing drug infusion weaning. Cardiogenic shock due to tramadol intoxication is rare. Negative inotropic effect of high doses of tramadol has been suspected [11].

If the left cardiac decompensation may be suspected clinically (respiratory distress, hypotension blood...), hyponatremia, due to its ignorance, can confuse the clinician, and be the cause of a delay care. These two complications found at our patient have to incite the clinician to look for them, in particular the hyponatremia, which in absence of a care in time can leave heavy after effects, as he was observed at our patient. Le Berre et al., reported tramadol induced hyponatremia which described as a result of inappropriate antidiuretic hormone secretion [12].

Case Presentation

A 24-year-old man with no medical history, brought by his parents to medical emergencies for confusion and hallucination. In admission, the patient was confused (Parents reported the concept of convulsion in home), with initial Glasgow coma score (GCS) of 07. The blood pressure was slightly elevated (160/90 mmHg), with a low Pulse-oximetry oxygen saturation (SpO₂) (75% while breathing ambient air). After admission, the patient's friend reported the concept of voluntary intoxication with Tramadol® (700 mg per os), dating back to 3 days instead.

After intubation and artificial ventilation, cerebral computed tomography (CT) was performed, returning without anomalies. A lumbar puncture also returning unremarkable. Laboratory tests found a urea to 1.01 g/l (0.15-50 g/l), creatinine at a 25 mg/l (8-13 mg/l), normal blood sugar levels, Aspartate aminotransferase (ASAT) 294 UI/l (10-50 UI/l), Creatinine phosphokinase (CPK) to 7000 UI/l (less than 190 UI/l), and normal troponin levels.

Serum sodium 117 mmol/l (135-145 mmol/l), and a serum potassium was normal. The arterial blood gas analysis revealed hypoxia and normal Paco₂.

Urinary Labstix found a pH greater than 7.

The telethorax revealed bilateral opacities (Figure 1) and abdominal ultrasound was without defects, with good corticomedullary differentiation in particular. The echocardiography was without defects, outside an ejection fraction of 45%. Once hospitalized in intensive care, the patient received symptomatic treatment, based on a fluid restriction (1.5 l per day), mechanical ventilation was instituted and hemodynamic support by inotropic drug infusion and diuretics.

Evolution was favorable and the patient was oriented towards psychiatry and functional reeducation service.

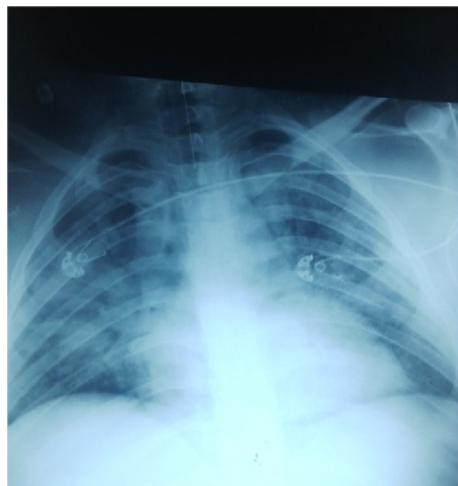


Figure 1: Diffuse bilateral infiltrats.

Rhabdomyolysis and rise of creatine phosphokinase (CPK) have been reported as a rare and serious complication in tramadol intoxication, which was observed in our presentation, which deserves a particular attention to avoid the installation of an acute renal insufficiency, favored by the therapeutic delay. At our patient the rate was in 36 times the normal, with a rate of blood urea in 1 g/l, in touch with the delay of consultation (3 days after the medicinal taking).

Hamid et al. And Afshari R. reported tramadol induced Rhabdomyolysis and rise of creatine phosphokinase [13,14]

Another complication easy to diagnose, it is the hypoglycemia, that is not found in our presentation, reported in the literature [15-17]. The underlying mechanisms of hypoglycaemia induced by tramadol are unclear. Its fast correction allows to avoid heavy after effects.

This complication alerts clinicians in the potential danger of severe hypoglycemia in the poisoning of tramadol.

Conclusion

The poisoning in Tramadol is responsible thus for a multiple organ failure. The healthcare professionals should be aware of the risk of hypoglycaemia, hyponatremia and Rhabdomyolysis. It is desirable that the hyponatremia and hypoglycemia are mentioned on the note summarizing the characteristics of the product as the side effects of the tramadol, so that they are known by the influencers.

Conflicts of Interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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