Analytically confirmed post-injection delirium/sedation syndrome (PDSS) occurred after olanzapine long-acting injection administration

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Objective. Olanzapine LAI (O-LAI) is a pamoate salt with slow release properties (approximately 1 month) when administered by deep intramuscular (depot) injection. However, after a single injection, some patients (2% or more) [1] can experience symptoms suggestive of olanzapine overdose. This adverse toxic effect is known as post-injection delirium/sedation syndrome (PDSS), and it is reported as probably due to an unintended intravascular injection or to a blood vessel injury [2], even during a proper administration. We describe a case of PDSS in which serum olanzapine concentrations have been evaluated. Case report. A 52-y-o woman received 405 mg of O-LAI by IM injection in a mental health center. Immediately after administration, the patient developed profound drowsiness, whereby she was admitted to the emergency department. At admission, miosis, coma with decerebrate response to painful stimuli and moderate sinus tachycardia (118 beats/min) were present. One hour later, she began to improve, and flexion response to painful stimuli appeared. About 12 hours after admission, patient was conscious, with hearth rate of 100 beats/min. She never developed arrhythmias and 24 hours after O-LAI administration was tranferred to the psychiatric ward. Serum samples collected at 2, 9, 19 and 23 hours after O-LAI administration showed olanzapine levels (HPLC-method) of 1026, 1192, 758 and 616 mcg/L, respectively (oral administration: therapeutic recommended range 20-80 mcg/L and peak concentration 115+/-26.7 mcg/L). Conclusion. PDSS is an adverse event that appear with a relative high frequency if compared to other LAI medications, even if after a proper administration. Possibly, the greater solubility of pamoate salt in blood than in muscle tissues can explain the observed high olanzapine serum levels. Clinical manifestations seen in this patient are coherent with the detected elevated blood levels, ascertaining a post-injection olanzapine overdose. Olanzapine serum levels detected in this patient are similar to those reported in a previous case described [3]. Nevertheless, a clear correlation between olanzapine serum levels and clinical manifestations is not proven in the previous reported overdose cases, even if they are not perfectly comparable (e.g. different way of assumption, time of sampling) [4]. Reporting of olanzapine PDSS cases, with a careful description of circumstances, symptoms, treatment and timely drug concentrations sampling may contribute to broadening the knowledge of this syndrome. References. [1]Bushe et al. BMC Psychiatry 2015;15:65; [2]McDonnell et al. BMC Psychiatry 2010;10:45 ; [3]Łukasik-Głezbocka et al. Basic Clin Pharmacol Toxicol 2015;117:213-214; [4]Theisen et al. J Child Adolesc Psychopharmacol 2005;15(6):986-995.