Clinical Toxicology (2013), **51,** 61
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ISSN: 1556-3650 print / 1556-9519 online
DOI: 10.3109/15563650.2012.752495

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healthcare

LETTER TO THE EDITOR

No clinical harm from a massive exenatide overdose – a short report

To the Editor:

We present a case of a massive exenatide overdose. A 46-year-old woman with a 7-year history of type 2 diabetes was admitted following an intentional overdose of exenatide. She freely admitted to subcutaneously injecting 3 vials of exenatide on the day of admission. This equated to 1800 mcg, 90 times the maximum daily dose.

She had a body mass index of 57 Kg/m^2 and a history of bipolar affective disorder and borderline personality disorder, including over 50 admissions for multiple drug overdoses – particularly with insulin - in the six years prior to this presentation.

In 2012, despite her poor glycemic control, a decision was made to stop insulin and commence her on exenatide on the presumption that it was a safer drug in overdose.

At presentation she was taking metformin 850 mg twice daily, pioglitazone 15 mg once daily, gliclazide 160 mg twice daily, and exenatide 10 mcg twice daily. She felt nauseated and was vomiting. Her observations, physical examination, hematology and biochemical indices were normal.

We contacted her general practitioner who confirmed that he had issued her a prescription for 3 months of exenatide a few days prior to presentation. Her pharmacy confirmed they had dispensed this. The empty vials of exenatide accompanying the patient were the same batch numbers as those dispensed. We were limited, however, by the inability to measure plasma concentrations of exenatide, and as previously her overdose was unwitnessed. Thus we were unable to definitively confirm whether she had taken the drug or not.

The patient experienced 24 hours of sustained nausea during which her blood glucose levels ranged between 296 and 500 mg/dL. She was treated once by a single dose of short-acting insulin. After 48 hours, she was asymptomatic, with normal biochemistry and was discharged.

Glucagon Like Peptide -1 (GLP-1) is a hormone secreted in response to an oral carbohydrate load. GLP-1 displays several effects; it slows down gastric motility; increases insulin secretion; inhibits glucagon production; and acts as a satiety signal.[1] The hormone works in a glucose-dependent manner – that is when glucose levels remain low, the hormone has little or no effect. Overdose of these agents (when taken alone), should therefore not be associated with an increased risk of hypoglycemia.

Very few case reports of GLP-1 overdose have been reported. Those that have show that the patients took substantially lower doses that the one we report – usually 10 times the daily dose.[2–4] Those reports also describe very few patients who experienced severe hypoglycemia. However, all of the reports are limited because most do not report concomitant use of glucose-lowering drugs.

In summary, in line with the mode of action of this drug, the reported case illustrates the relative safety of exenatide in massive overdose.

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Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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Received 25 October 2012; accepted 19 November 2012.

All of the authors cared for the patient during the admission described. LK and DG wrote the initial draft. KD wrote the final draft. All authors have agreed to this version. Dr Dhatariya has looked after the patient on more that 30 of her previous admissions. Dr Dhatariya takes responsibility for the paper as a whole.

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