Case Report

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Post Viral Gastroparesis Secondary To GLP-1 Receptor Agonist Use

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1. Abstract

Glucagon-like peptide-1 (GLP-1) receptor agonists are a class of injectables used in the management of type 2 diabetes mellitus (T2DM) and more recently obesity. This case report highlights an incidence of post viral gastroparesis of 12 days secondary to long term GLP-1 receptor agonist use in a 28-year-old male with nil other medical history besides obesity. Post viral gastroparesis due to GLP-1 receptor agonist is a novel adverse effect that has not been formally documented in the current literature. This report has highlighted the importance of ongoing surveillance of adverse effects of long term GLP-1 receptor agonist use. Clinical trials formally assessing the incidence of gastroparesis in GLP-1 receptor agonist use via imaging such as gastric emptying scintigraphy is also recommended.

2. Keywords: GLP-1 receptor agonist, gastroenteritis, gastroparesis

3. Case Presentation

28-year-old male presented to the health hub clinic with symptoms of diarrhoea over 9 days that did not improve despite a 3-day course of antibiotics. The patient was reporting loose stools 6 to 7 times/day, generalised abdominal discomfort, lethargy and malaise. The patient denied any blood or mucous in their stools or subjective fevers. Patient had previously seen a general practitioner 3 days earlier (day 6 of illness) and was prescribed a 3-day course of 500mg azithromycin for protracted diarrhoea. However, symptoms continued to persist after completing the course of antibiotics prompting an additional visit to the clinic. The patient did not have any new types of foods, recent travel history or sick close contacts. The patient worked in a healthcare setting. He also reported an occasional history of gastroenteritis. However, previous instances have resolved within 1 to 3 days. Patient has a history of obesity and had commenced a GLP-1 receptor agonist 4 months prior with nil complications. Otherwise, he took no regular medications or supplements.

Clinical examination revealed tympanic temperature of 36.8 C and normal blood pressure. Abdomen was soft not tender with no guarding or rigidity. Bowel sounds were present. A full blood count, serum chemistry, C-reactive protein and stool sample were collected. Full blood count, white cell count and serum chemistry were all within normal limits (Figure 1). C-reactive protein was also reassuringly within normal limits. The stool sample showed no bacterial pathogens, ova, cysts or parasites (Figure 2). On follow-up 4 days later, diarrhoea had resolved for the patient after a total of 12 days. He had continued taking his GLP-1 receptor agonist with nil concerns. He also reported a close contact having a diarrhoeal illness post discharge from the clinic. However, their symptoms had resolved within 2 days.

4. Discussion and Conclusion

GLP-1 receptor agonists are a class of medications that are used in the management of T2DM. More recently, it has been recognised by the World Health Organisation as a clinically significant way to manage obesity [1]. Acute gastrointestinal adverse effects have been clinically documented; predominantly nausea, vomiting and diarrhoea [2]. However, these acute adverse effects are often seen within 90 days and are resolved post reduction in dose or discontinuing of the medication [3]. Adverse effects from prolonged use of GLP-1 receptor agonist have been associated with increased risk of pancreatitis as well as gastroparesis [4]. Therefore, it is expected that the patient in this case report has had prolonged symptoms of a viral gastroenteritis due to post viral gastroparesis. It is likely due to long term GLP-1 agonist use given his previous history of short courses of gastroenteritis and nil significant past medical history besides commencement of a GLP-1 receptor agonist. Furthermore, reporting a close contact having a short 2-day course of gastroenteritis post his discharge provides further credence to GLP-1 receptor agonist use contributing to his post viral gastroparesis.

This case study highlights the importance of ongoing surveillance regarding the adverse effects of prolonged use of GLP-1 receptor agonists. It is recommended that clinical trials are conducted on patients using GLP-1 receptor agonists over a longer period (e.g. >6 months) to assess the incidence of gastroparesis via formal imaging such as a gastric emptying scintigraphy (GES) scan.

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Further research on the incidence of post viral gastroparesis due to GLP-1 receptor agonists should be investigated as nil other case reports or trials were found.

FULL BLOOD EXAMINATION					
Haemoglobin		152	g/L		(135-180)
Red Cell Count		5.6	x 1 0 ^ 1 2 /L		(4.2-6.0)
Haematocrit		0.46			(0.38-0.52)
Mean Cell Volume		84	fL		(80-98)
Mean Cell Haemoglobin		27	pg		(27-35)
Platelet Count		305	x10^9 /L		(150-450)
White Cell Count		9.6	x10^9 /L		(4.0-11.0)
Neutrohils	65%	6.2	x10^9 /L		(2.0-7.5)
Lymphocytes	27%	2.6	x10^9 /L		(1.1-4.0)
Monocytes	5%	0.5	x10^9 /L		(0.2-1.0)
Eosinophils	3%	0.29	x10^9 /L		(0.04-0.40)
Basophils	0%	0.00	x10^9 /L		(< 0.21)
SERUM CHEMISTRY - RANDOM					
Sodium		145	mnol/L		(137-147)
Potassium		4.3	mnol/L		(3.5-5.0)
Chloride		102	mnol/L		(96-109)
Bicarbonate		29	mnol/L		(25-33)
+ Other Anions		18	mnol/L		(4-17)
Glucose		4.8	mnol/L	random	(3.0-7.7)
Urea		5.4	mnol/L		(2.5-8.0)
Creatinine		74			(60-130)
eGFR		>90			(over 59)
Uric Acid		0.42	mnol/L		(0.12-0.45)
Total Bilirubin		15	umol/L		(2-20)
Alk. Phos.		61	U/L		(30-115)
Gama G.T.		23	U/L		(0-70)
ALT		37	U/L		(0-45)
AST		17	U/L		(0-41)
LD		153	U/L		(80-250)
Calcium		2.38	mnol/L		(2.15-2.60)
Adjusted For Albumin		2.37	mnol/L		(2.15-2.60)
Phosphate		1.1	mnol/L		(0.8-1.5)
Total Protein		73	g/L		(60-82)
Albumin		43	g/L		(35-50)
Globulins		30	g/L		(20-40)
Cholesterol		3.1	mnol/L		(3.1-6.5)
Triglycerider		1.3	mnol/L	random	(0.3-4.0)

CRP			+	4 mg/L(<4)

Figure 1: Blood tests on presentation (Full blood examination, serum chemistry and C-reactive protein)

FAECES FOR EXAMINATION	
APPEARANCE:	Semi-formed
MISCOSCOPY	No ova, cyctc or parasites seen
ANTIGEN ASSAY	
Giardia	Not Detected
Cryptosporidium	Not Detected
CULTURE	No bacterial pathogens isolated

Figure 2: Stool OPC+MCS

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