A NOVEL CASE OF DULAGLUTIDE-INDUCED LIVER INJURY

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INTRODUCTION

The differential diagnosis for elevated transaminases is broad, however, extreme elevation to the thousands narrows that down to a few likely diagnoses. These include acute viral hepatitis, ischemia, medication or toxin-induced injury, or autoimmune hepatitis[1]. Dulaglutide, a glucagon-like peptide-1 receptor agonist used to treat diabetes, has not been known to cause liver injury. We present a rare case of drug-induced liver injury (DILI) caused by dulaglutide.

CASE DESCRIPTION

A 50-year-old male with a complicated history of orthotopic heart transplant three months prior to presentation, on chronic immunosuppression, hepatitis C not previously treated, type two diabetes mellitus, and coronary artery disease presented due to nausea, diffuse abdominal pain, and elevated aspartate aminotransferase (AST) and alanine aminotransferase (ALT) levels. Vital signs were stable. Physical examination was pertinent for non-tender abdomen with no hepatomegaly or splenomegaly and normoactive bowel sounds. Leading up to this, the patient had been getting weekly outpatient complete metabolic panels as part of management for his heart transplant. Although initial transaminases were normal after his transplant, his levels had been gradually increasing over the last month.

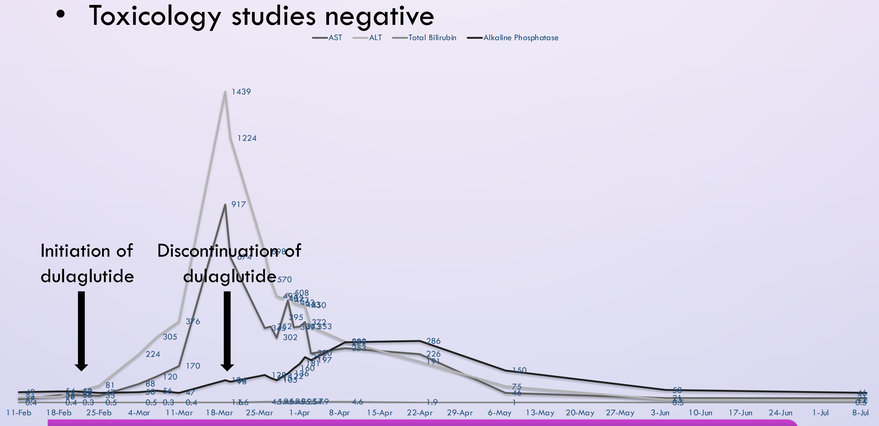
LABORATORY DATA

The following laboratory values were obtained on initial presentation.

	13.5	
5.0		165
	41.3	

135	105	14
4.0	23	0.83

- AST 917 U/L, ALT 1439 U/L
- Alkaline phosphatase 104 U/L, total bilirubin 5.4 mg/dl
- Coagulation studies within normal limits
- Hepatitis C viral load 100,000,000 IU/ml
- Autoimmune etiologies ruled out
- Toxicology studies negative



IMAGING

- Computed tomography and ultrasound of the abdomen showed normal liver with possible cholecystitis
- ERCP and HIDA scan did not show evidence of biliary tract disease
- Liver biopsy showed pseudo-ground glass changes, cholestasis, bile duct proliferation with admixed neutrophils

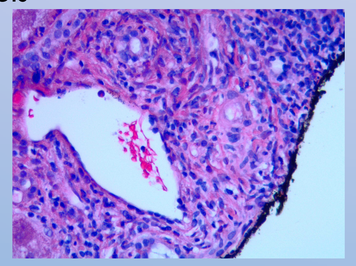


Figure 1. Periductal injury.

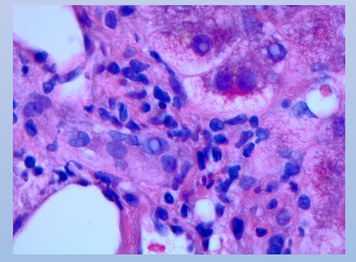


Figure 2. Nuclear inclusions.

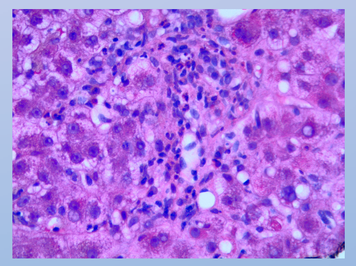


Figure 3. Neutrophil infiltrate.

DIAGNOSIS

Further history taking revealed that three days prior to initial elevation in transaminases, the patient had been started on dulaglutide. These numbers continued to increase until hospitalization. Of note, upon admission, the patient was resumed on his home statin and immunosuppressants. Patient was taken off his dulaglutide and transaminases normalized within two months after discontinuation. Given this and the findings on the liver biopsy, it was concluded that dulaglutide resulted in DILI in this patient.

CONCLUSION

Side effects well known to glucagon-like peptide-1 receptor agonists are nausea, vomiting, diarrhea, pancreatitis, and renal failure[2]. Our patient demonstrates a unique presentation of liver injury from this class of drugs not seen during large clinical trials. To our knowledge, there is only one other reported case of DILI from dulaglutide[2]. Given the common use of this class of medication, physicians should be aware of this as a potential adverse effect. It also reinforces the importance of diligent follow-up of patients after initiation of these relatively newer medications.

REFERENCES

1. Giannini, Edoardo, et al. "Liver enzyme alteration: guide for clinicians." *CMAJ: Canadian medical association journal*, Canadian medical association, 1 February, 2005.
2. Patel, Anish, et al. "Drug-induced liver injury due to dulaglutide use." *American journal of therapeutics*, U.S. National library of medicine, 2019.