Semaglutide Initiation in a Type 2 Diabetes Mellitus Post-Liver Transplant Patient

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Background

- In 2015, an estimated 30.3 million people in the US were affected with type 2 diabetes mellitus (T2DM) which is approximately 9.4 percent of the U.S. population[1]
- As of 2007, it has been estimated that diabetes is one of the most common causes of liver disease in the U.S.[2,3]
- In 2018, over 36,000 liver transplants were performed within the U.S.[4]
- The management of diabetes is complex, however, with the addition of liver disease and subsequent liver transplantation, diabetes management becomes more complicated when considering the implications on cost, polypharmacy, drug metabolism, drug-drug interactions, and drug-disease interactions
- Minimal evidence is available on the use of medications other than insulin for diabetes management in this patient population, therefore, clinical judgement must be utilized when treating patients who have undergone liver transplantation[5]

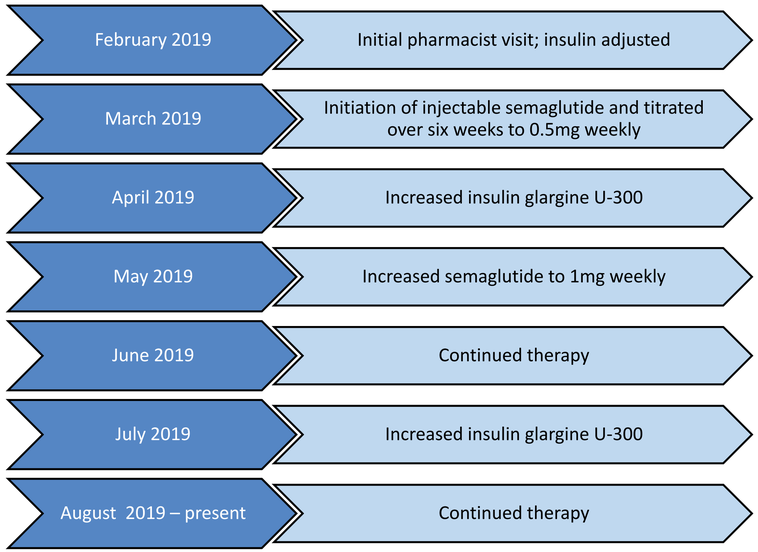
Purpose

- To highlight the approach taken in the complex management of T2DM in a patient post-liver transplantation (PLT)
- This case goes beyond current American Diabetes Association and American Association of Clinical Endocrinologists guideline directed therapy management strategies and describes an approach taken in the complex management of diabetes in a patient post-liver transplantation

Case Presentation

- A 63-year-old Caucasian male with T2DM, on basal-bolus insulin therapy was referred by his family medicine provider to the ambulatory care pharmacist for diabetes management due to a hemoglobin A1c level greater than 10%
- The diagnosis of T2DM was prior to the patient's liver transplantation in May 2012
- Additional past medical history includes obesity, degenerative joint disease, hypertension, osteoarthritis, and mixed hyperlipidemia
- Under a collaborative practice agreement, non-pharmacological and pharmacological adjustments were made to improve blood glucose control and monitor laboratory values
- Non-pharmacological interventions for diabetes management included dietary modifications and basic exercise
- Semaglutide was initiated and titrated in combination with basal-bolus insulin adjustments taking disease states, cost, and health literacy into consideration

Timeline



Patient's Pertinent Labs

Monitoring Parameter & Lab Reference Range	Feb-19	Mar-19	Jun-19	Sep-19	Dec-19	Mar-20	Jun-20	Sep-20	Dec-20	Feb-21
A1c (4.1-5.6 %)	10.9 (H)	9.5 (H)	6.5 (H)	6.1 (H)	6.4 (H)	5.8 (H)	6.5 (H)	6.4 (H)	6.4 (H)	6.3 (H)
Creatinine (0.72-1.25 mg/dL)	1.15	1.33 (H)	-	1.17	1.12	1.17	1.05	1.02	1.2	1.15
Tacrolimus Level (5-15 ng/mL)	-	4.5 (L)	-	7.6	2.2 (L)	2.0 (L)	2.1 (L)	2.8 (L)	2.4 (L)	-

Results

- The initiation and dosage titration of semaglutide assisted with glycemic control within this patient to achieve an A1c goal of less than 7%
- Cost concerns were resolved by assistance with clinic sample medications and referral to the manufacturer medication assistance program
- Health literacy concerns were addressed throughout each pharmacist visit by presenting targeted information or use of patient handouts and dedicating the majority of the pharmacist visit to educating the patient

Conclusions

- Semaglutide, in addition to basal-bolus insulin therapy, allowed for overall improved glycemic control
- This case demonstrates the importance of pharmacist involvement, non-pharmacological interventions and patient education as 4.8% A1c reductions are not typical with the addition of semaglutide alone
- Throughout the course of treatment of T2DM in PLT patients, dual monitoring of antidiabetic therapy and antirejection medications is essential to reduce the risk of organ rejection
- Focus of organ rejection avoidance should always be considered above glycemic control
- As the number of patients with T2DM that undergo liver transplant increases, it is prudent that prospective studies are conducted to identify appropriate antidiabetic therapy use in conjunction with immunosuppressive agents

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Panel Disclosures

- The authors of this research project have no disclosures to declare concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation