Acta Biomed 2011; 82: 160-161

Case report

Efficacy of liraglutide in a patient with type 2 diabetes and cryptogenic cirrhosis

Eugenio D'Amico
UOC Medicina Interna M. Valentini, Ospedale Annunziata, Cosenza

Abstract. In this work Author presents a case report of a female patient of 65 years old who had suffered from type 2 diabetes mellitus and from concomitant cryptogenic cirrhosis. She was treated with liraglutide, an analogue of human GLP-1, obtaining an optimal metabolic control associated with an improved clinical condition for the cirrhosis. (www.actabiomedica.it)

Key words: Type 2 diabetes mellitus, cryptogenic cirrhosis, liraglutide

Introduction

Type 2 diabetes mellitus (T2DM) and liver diseases are closely correlated, as there is a higher frequency of impaired liver function in patients with T2DM when compared to the general population. The treatment of T2DM patients needs particular attention, especially in those older than 65 years as compared to younger patients, both because of comorbidities and the physiological conditions that correlate with age.

On the other hand, most patients with cryptogenic cirrhosis also suffer from T2DM, obesity and dyslipidaemia, which are the risk factors associated with non-alcoholic steatohepatitis syndrome (NASH) (1). Insulin resistance is one of the most important predictive factors for the development of these conditions, which is considered an integral part of the metabolic syndrome. At present, there are no standard treatment options, although there are numerous studies underway to define possible pharmacological agents.

"As well as having a very good efficacy on metabolic control and for the improvement of these parameters (glycosylated haemoglobin, blood pressure decrease and weight loss), analogues of glucagon-like peptide 1 (GLP-1), and in particular liraglutide, have been shown to reduce the steatohepatitis (evaluated according to the NFS-NAFLD fibrosis score) and the inflammation markers of the liver, not only in rodents, but also in patients with poorly controlled T2DM" (2, 3).

Case report

We identified a female patient of 65 years who had suffered from T2DM for 20 years, and from concomitant cryptogenic cirrhosis for 15 years. The efficacy of liraglutide, an analogue of human GLP-1, was evaluated both on metabolic control and on improvement in liver function parameters.

On her first visit, the patient presented with oesophageal varices, splenomegaly and portal hypertension, and poor metabolic control, although she was under therapy with three daily injections of rapid-acing insulin at mealtimes and a basal dose in the evening; moreover, the patient was taking metformin 500 mg three times a day. The patient had shown an urticarioid reaction to the insulin, and therefore it was felt necessary to suspend the therapy.

After an insulin wash-out of four weeks, on the basis that the introduction of liraglutide therapy could

Table 1.

Clinical and biochemical parameters	Baseline	At 12 weeks
HbA1c	8.5%	6.5%
Fasting plasma glucose	200 mg/dl	110 mg/dl
Body mass index	35 kg/m^2	30 kg/m^2
Weight	90 kg	77 kg
Triglycerides	230 mg/dl	150 mg/dl
Total cholesterol	220 mg/dl	220 mg/dl
Transaminases		
(Aspartate/alanine)	(120/120) IU/l	(50/50) IU/l
Spleen	19 cm	15 cm
Platelet count	44 x 10^3/mmc	75 x 10^3/mmc
Albuminaemia	2.0 g/l	2.5 g/l

improve both her metabolic control and liver function, it was decided to treat the patient with liraglutide as a single daily dose, following the therapeutic scheme given in the technical notes (Victoza®; 0.6 mg for the first week, 1.2 mg thereafter) accompanied by 1.5 g/day metformin (4). The clinical and laboratory parameters were determined at the start of this treatment and after 12 weeks of therapy (Table 1)

After 12 weeks of therapy, the patient had obtained a net reduction in weight from 90 kg to 77 kg (reduction, 13 kg) and in body mass index from 35 kg/m^2 to 30 kg/m^2; moreover, there was an increase in platelet count from 44 × 10^3 to 75 × 10^3, a decrease in the splenomegaly from 19 cm to 15 cm, improvements in liver enzymes (and in particular of alanine transaminase, from 120 IU/l to 50 IU/l) and triglycerides (from 230 mg/dl to 150 mg/dl), and the desired endpoint of the glycosylated haemoglobin was reached (HbA1c from 8.5% at the start, to 6.5%), along with a reduction in fasting plasma glucose from 200 mg/dl to 110 mg/dl after 12 weeks.

Conclusion

The therapy with liraglutide was effective and well tolerated by the patient, who obtained an optimal metabolic control (HbA1c on target, and reduced fasting plasma glucose, lipids and body weight) that was also associated with an improved clinical condition for the cirrhosis (reductions in the transaminases and spleen size, improved platelet count and albuminaemia) (5, 6).

References

1. Bell DS, Allbright E. The multifaceted associations of hepatobiliary disease and diabetes. *Endocr Pract* 2007; 13 (3): 300-12.
2. Flint A, Nazzal K, Jagielski P, Hindsberger C, Zdravkovic M. Influence of hepatic impairment on pharmacokinetics of the human GLP-1 analogue, liraglutide. *Br J Clin Pharmacol* 2010; 70 (6): 807-14.
3. Armstrong M, et al. Abstracts of the 46th General Assembly of the European Association for the Study of Diabetes (EASD). Stockholm, Sweden. September 20-24, 2010. *Diabetologia* 2010; 53 (Suppl 1): S7-533.
4. Technical sheet: Victoza®
5. Ryan GJ, Hardy Y. Liraglutide: once-daily GLP-1 agonist for the treatment of type 2 diabetes. *J Clin Pharm Ther* 2011 Jun;36(3):260-74.
6. Guideline SID - AMD 2009-2010 Standard of care for diabetes mellitus

Accepted: August 27th 2011
Correspondence: Eugenio D'Amico
UOC Medicina Interna M. Valentini,
Ospedale Annunziata, Cosenza
E-mail: eudam@yahoo.com