Combined treatment with Sitagliptin and Vitamin D in a patient with Latent Autoimmune Diabetes of Adulthood

Eleni Rapti, Athanasios Mousiolis, Maria Grammatiki, Maria Yavropoulou, Pantelis Zebekakis, Michail Daniilidis, Kalliopi Kotsa

Department of Endocrinology and Metabolism, A' Internal Medicine Clinic, University General Hospital of Thessaloniki "AHEPA" - Greece

OBJECTIVE

To report a case of a patient diagnosed with Latent Autoimmune Diabetes of Adulthood (LADA) based on clinical presentation and positive Glutamic Acid decarboxylase antibodies (GAD-abs) that converted to antibody negative diabetes after combined treatment with sitagliptin and Vitamin D.

	Feb/2013	Jan/2014	Feb/2015
HbA1c	9.6	5.4	5.2
GAD-abs	32	4.2	4.1
25-OH-D3 ng/mL	11	41	39
Cortizole μg/dL	16.9		
TSH μIU/ml	1.01	1.3	1.21
Insulin μIU/ml	10.3		14
C peptide ng /ml	1.0		1.2
Creatinine mg/dl	1.1	1.0	1.0
Cholesterol mg/dl	241	198	195
Triglycerides mg/dl	185	85	99

Figure 1

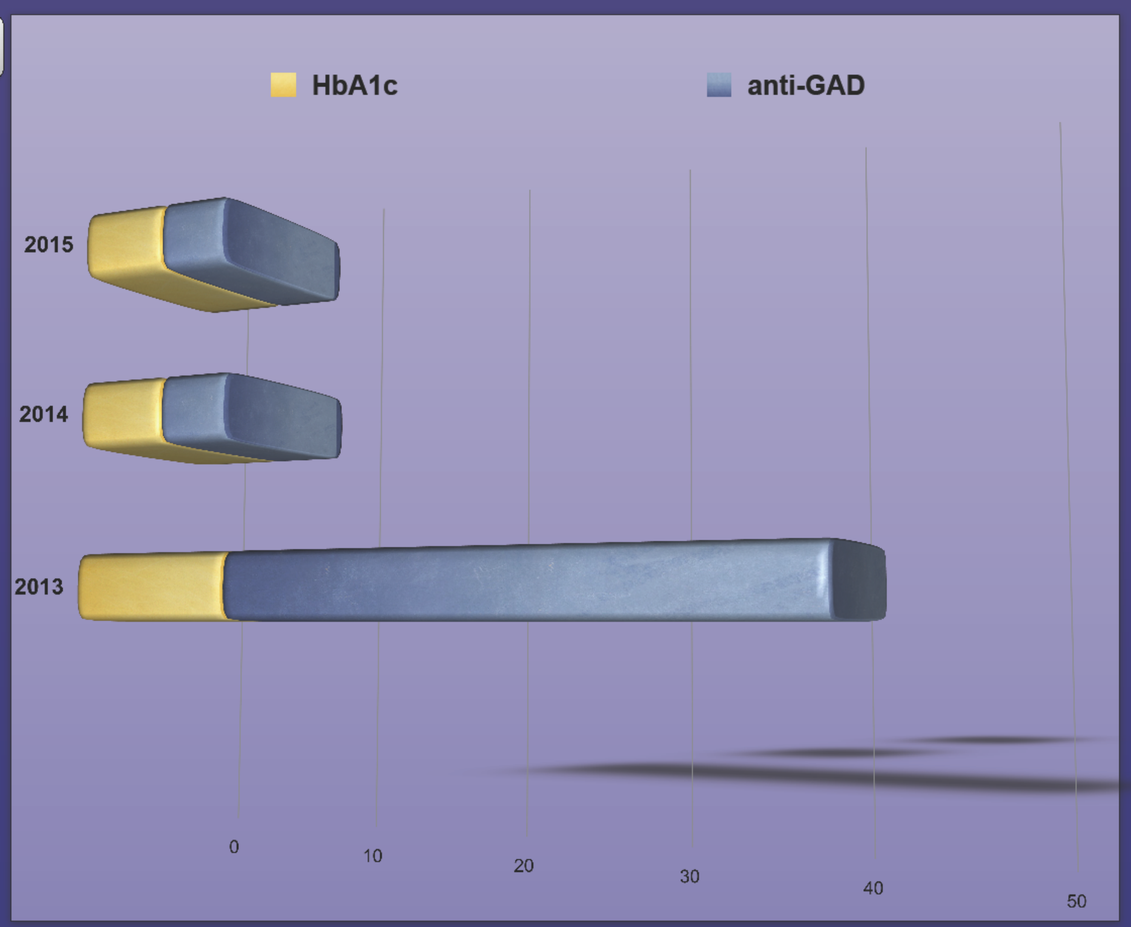
HLA-DRB1*	04:01/	03:01/
HLA-DQB1*	02:01/	03:02/

Figure 2

METHOD

A 31 year old Caucasian male presented at the emergency room with symptoms of polyuria, polydipsia and weight loss of approximately 15 kg during the previous three months. Blood glucose measured on site was 300mg/dl with only traces of ketones in the urine, arterial blood gas within normal range (pH:7,36) and HbA1c at 9,6%. He was a heavy smoker, overweight (Obesity Class I, BMI:32,8kg/m2) and had no prior medical history of serious or chronic medical conditions. He had a family history of autoimmune disorders as his sister had been diagnosed with type 1 diabetes mellitus (T1D) at the age of 5, an autoimmune haemolytic anaemia and autoimmune thyroiditis during puberty. Declining insulin therapy he was initially treated with gliclazide and metformin. A GAD-abs titer measurement was performed and the results came back positive at 32U/mL (NV<5U/mL). A Human Leukocyte Antigens (HLA) genotyping for DR and DQ encoding loci was carried out and resulted in the genotype presented in Figure 2. Taking under consideration his age, the increased GAD-abs titer and the haplotype DQB1*02:01/03:02 which is positively associated with type 1 diabetes, a diagnosis of Latent Autoimmune Diabetes of Adulthood was established. Other blood tests came back normal except from a low 25-OH-VitD level of 11ng/mL (NV>30ng/mL) (Figure 1). Declining insulin therapy once again, he was advised to discontinue gliclazide and a combination of metformin 850mg/sitagliptin 50mg twice daily along with Vitamin D supplementation (2000 IU/day) was prescribed.

Figure 3



RESULTS

Being able to comply with diet and exercise directions he presented 6 months later with an excellent glycemic profile and HbA1c of 6,1%. At 11 months his HbA1c was 5,4% and his GAD-abs level declined by 86% within normal range at 4,2U/mL (Figure 3). Two years later, receiving the same treatment, he has negative GAD-abs, his HbA1c is 5,2% and he maintains an excellent glycemic profile (Figure 1).

CONCLUSIONS

Both Vitamin D analogues and Dipeptidyl peptidase-4 (DPP-4) inhibitors have been shown to improve β-cell function and attenuate autoimmunity in type 1 diabetic mouse models. To our knowledge this is the first case that combined treatment with sitagliptin and Vitamin D in a patient with LADA reverted the phenotype and preserved an excellent glycemic control without the use of insulin 24 months after diagnosis.

REFERENCES:

1. Lima-Martinez MM, Guera-Alcala E, Contreras M, Nastasi J, Noble JA, Polychronakos C. One year remission of type 1 diabetes mellitus in a patient treated with sitagliptin. Endocrinol Diabetes Metab Case Rep. 2014;2014:140072
2. Pozzili P, Mario UD. Autoimmune diabetes not requiring insulin at diagnosis (Latent autoimmune diabetes of adult). Diabetes Care. 2001;24:1460-67
3. Kandasamy N, Lennox G, Annamalai AK, Maguire G, Adler AI. Sitagliptin in glutamic acid decarboxylase antibody-positive diabetes mellitus. Endocr Pract. 2012;18:65-8
4. Hayes CE, Hubler SL, Moore JR, Barta LE, Praska CE, Nashold FE. Vitamin D actions on CD4(+) T cells in autoimmune disease. Front Immunol. 2015;6:100

17 ECE
1288--EP
Clinical Cases - thyroid/others
Eleni Rapti
DOI: 10.3252/pso.eu.17ece.2015
Poster presented at: ECE2015 16-20 May 2015 DUBLIN, IRELAND 17th EUROPEAN CONGRESS OF ENDOCRINOLOGY