Prevalence of Anti-GAD65 Positive Diabetes among Adults with New Onset Diabetes

Ali Saad Al-Deen Abdul razzaq Al-hilly
Chief of Diabetes Center in Al -Dewanyia Teaching Hospital.
Rateb F. Abo Kadher
Chief of Immunology Laboratory in Al-Dewanyia Teaching Hospital.
Majidah Naser Mohsin
ratebfanookh@gmail.com

Abstract

This study showed that among older adults presented with newly diagnosed diabetes there is certain percentage actually have type 1 diabetes as detected by positive anti-GAD65 antibody test and they shouldn't be misdiagnosed as having type 2 diabetes.

Keywords: IDDM Insulin Dependent Diabetes Mellitus, NIDDM Non Insulin Dependent Diabetes Mellitus, DKA: Diabetic Ketoacilosis.

الخلاصة

استهدفت الدراسة معرفة مدى انتشار الجسم المضاد بين مرضى السكري البالغين الكبار لتحديد Anti-GAD65 antibody وتمييزالمصابين بالنوع الاول لداء السكري لأهمية ذلك في اختيار العلاج المناسب.

الكلمات المفتاحية: السكري المعتمد على الانسولين، السكري غير المعتمد على الانسولين. التسمم السكري.

Objective

The aim of this study was to determine the prevalence of positive anti-GAD65 antibody patients among newly diagnosed older adults with diabetes.

Patients and methods

Fifty four patients aged (30 to 45yrs) who are newly diagnosed with diabetes mellitus attending the Diabetes Center in Al-Dewanyia Teaching Hospital were selected for this study and they were sent for anti-GAD65 antibody testing.

Results

A total of 12 out of 54 patients(22.2%)were anti-GAD65 positive.Among those with positive Anti-GAD65 5 out of 12 (41.6%) were insulin treated(IDDM) , and the remaining 7 (58.4%)were either on diet or oral hypoglycemic drugs.

Introductio

Type 1 diabetes(formerly called juvenile onset diabetes) usually occur among children and adolescents but it is not uncommon among adults older than 18 years old, adult patients with type 1 diabetes are sometimes misdiagnosed as type 2 diabetes due to their age of onset, mild hyperglycemia that is controlled with diet and\or oral hypoglycemic drugs without the need for insulin (insulin independence) or sometimes need small doses of insulin. These cases actually have delayed onset(or slowly progressing) autoimmune type 1 diabetes and are designated as having LADA (Latent Autoimmune Diabetes of the Adult) (Rowley *et al.*,1992) .This latency is explained by partial destruction of B-cells due to mild autoimmune process with residual insulin secreting B-cells(immune tolerance to β-cell antigens could occur in LADA, which in turn may spontaneously protect these patients from extensive T-cell mediated destruction of β-cells) (Hagopian *et al.*,1993; Luhder *et al.*,1994).

Therefore it is difficult sometimes to label these patients as type 1 or type 2 diabetes unless certain specific investigation used to detect type 1 autoimmune diabetes.

Type 1DM is characterized by production of specific autoantibody against B-cell components (namely , insulin antibody , islet cell antibody (ICA) and anti-glutamic acid decarboxylase antibody (anti-GAD65) (Petersen *et al*.,1994). Measurement of GAD65 antibodies in patients with recent-onset type 2 diabetes is, in practical terms, the first step in identifying patients who may be diagnosed with LADA if results are positive (Petersen *et al* ., 1994; Tuomi *et al*., 1994).

Methods

Fifty four patients (23 male and 31 female) were chosen for this study ,their ages ranged from 30 to 45 years ,all patients had new onset diabetes ranging from 1 to 8 months, their treatment varied from diet alone (6 patients)to oral treatment(41 patients) and insulin (7 patients),only 8 patients had family history of diabetes ,the insulin treated patients had lower BMI than non-insulin treated patients, non of the total 54 patients had history of DKA, or hospital admission due to diabetes.

Measurement of anti-GAD65 antibody was done by enzyme linked immunoassay (Niskanen *et al*., 1995).

Results

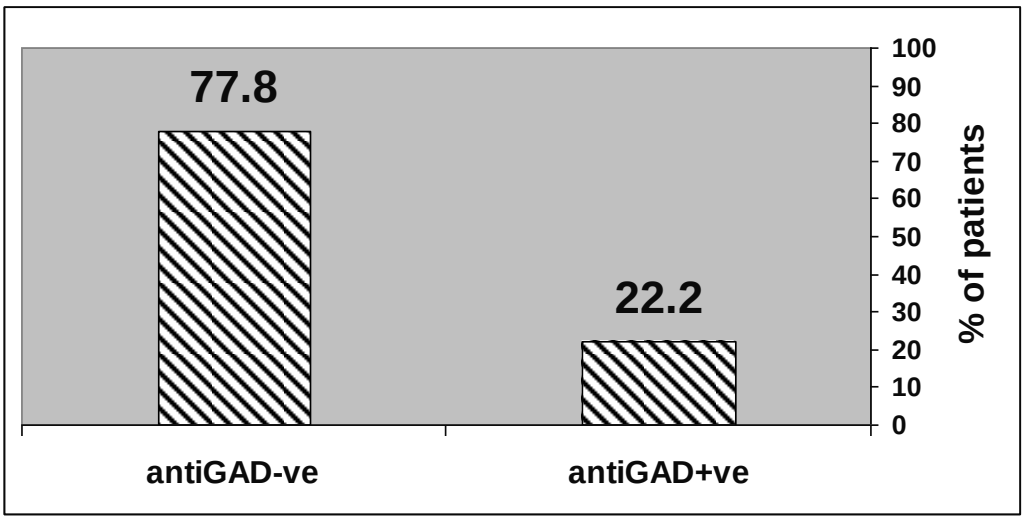

Table -1- prevalence of anti-GAD65+ve diabetes among adults.(P <0.01)

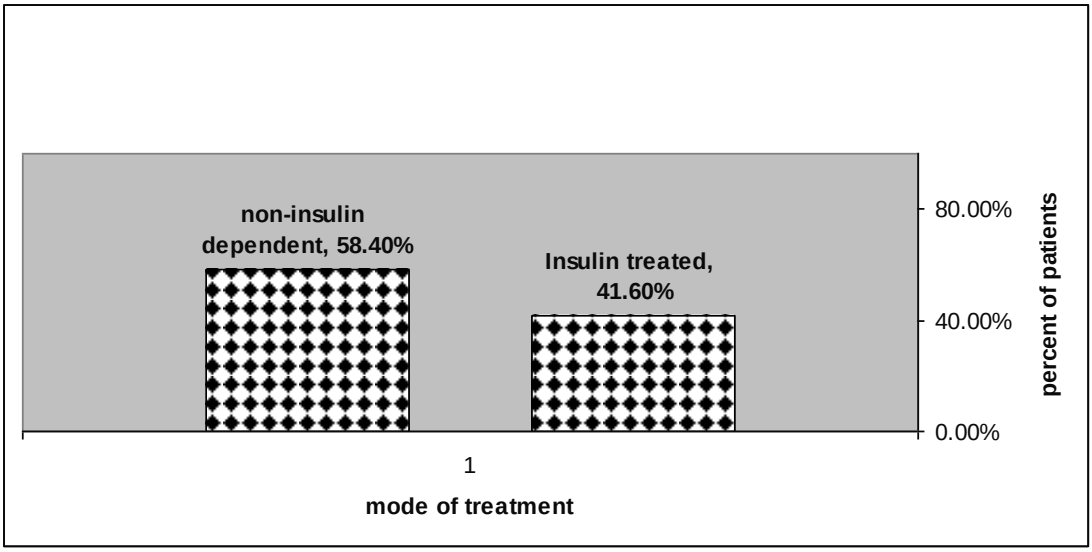

Table -2- mode of treatment among anti-GAD65 +ve newly diagnosed adults with diabetes.(P <0.01)

A total of 12 out of 54 patients(22.2%)were anti-GAD65 positive (table 1) .Among those with positive Anti-GAD65 5 out of 12 (41.6%) were insulin treated(IDDM) , and the remaining 7 (58.4%)were either on diet or oral drugs(NIDDM) (table 2),anti-GAD65 positive subjects were between 30 to 35 year old ,their BMI ranged from 18 to 27 kg\m².

Discussion

This study has shown that among adult patients newly diagnosed with diabetes mellitus there is certain percentage of patients(22.2% according to this study) who were anti-GAD65 positive ,which means that they actually have type 1 diabetes rather than type 2 which is the expected type in such age group, and this type of the disease is said to be slowly progressive form of type 1 diabetes (Thai *et al*.,1994; Thai *et al*.,199) sometimes named latent autoimmune diabetes of the adult or LADA) and that such patients should be treated and followed up with guidelines of type 1 DM to control hyperglycemia because they are non-responsive or poorly responsive to oral agents and starting insulin therapy early in these patients could help in improvement of B-cell function and could delay or halt the progression of B-cell loss and delaying of the long term complications of diabete (retinopathy, neuropathy and nephropathy) (Ng *et al*., 1995; Park *et al*.,1996) .

other characteristics of these LADA patients which should prompt suspicion is that they are lean(none-obese) and less commonly give family history of diabetes, therefore it is beneficial to include the anti-GAD65 antibody screening in the initial evaluation of adults newly diagnosed with diabetes mellitus to recognize those with type 1 diabetes for the early initiation of insulin therapy to delay the rapid progression of B-cell loss and destruction (Tuomi *et al*.,1995).

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