

# SCHOOL AGE PRESENTATION OF DIABETES MELLITUS TYPE 1 WITH REPEAT HYPERGLYCAEMIA, POSITIVE PANCREATIC AUTOIMMUNITY AND RELATED GENETIC RISKS

*Authors: A. D. Alcalde de Alvare, J. Yebra Yebra, M. Hawkins Solís, A. Tagarro García, A. Cañete Díaz*

*Hospital Infanta Sofia, San Sebastian de los Reyes, Madrid*

## Background:

Type 1 diabetes mellitus has three common presentations: typical (hyperglycaemia with cardinal symptoms), ketoacidosis and asymptomatic hyperglycaemia.

Other presentations, although rare, must also be accounted for in the differential diagnosis when evaluating hyperglycaemia in paediatric patients.

## Case Presentation:

A 7.5 year-old female with a history of bronchial asthma presented to the emergency room with an acute-onset of diabetic symptoms. The previous year she had been diagnosed with pneumonia complicated by pleural effusion, and was admitted to the Paediatric Ward. Subsequently, she developed a hyperglycaemia (400mg/dl) related to IV corticosteroid administration with a ketone negative glycosuria. Insulin therapy (maximum 0.86 IU/Kg/day) was administered for 5 days. At discharge her preprandial glycaemia was normal, while an asymptomatic postprandial hyperglycaemia (230-240mg/dL) persisted for one week.

## Laboratory Study and Outpatient Follow-up:

Outpatient follow-up labs revealed: a positive HLA DR3, normal insulin and C-peptide and a HbA1c of 5.4% (NGSP). AntiGAD (2000 U/ml), pancreatic islet cell, antitransglutaminase and antiendomysium antibody levels were positive. Anti-insulin antibody was negative and her oral glucose challenge test was normal. Six months post-discharge, she again presented to the emergency room with an acute bronchospasm. She was admitted and treated with oral corticosteroids. A hyperglycemia (400mg/dL) and a glycosuria ensued without ketonuria. Corticosteroids were discontinued and a subcutaneous insulin regimen was started (maximum 0.75UI/kg/day) which resulted in her glycemic values normalizing over three days.

After four months she was readmitted with a three day history of polydipsia and nocturnal enuresis. Her at-home blood glucose measured 500 mg/dl. Hospital labs revealed: a normal venous pH, a venous blood glucose of 511mg/dl with a negative ketonuria and ketonemia. Her glycohemoglobin was 8.5% and her microsomal antibody levels were positive. Her thyroid function was normal and her bone age was appropriate, as was her fundoscopic exam. Repeat lab values for pancreatic autoimmunity and antitransglutaminase antibody remained positive.

## Progress and Diagnosis:

Hospitalization at 6yrs + 5mth:

Pneumonia  
G 400mg/dl  
(post corticoids)  
s.c insulin  
0.85UI/Kg/day

Outpatient follow-up:  
Normal G and OGTT  
C-peptide, insulin  
Positive antiGAD and  
Antiislet antibodies  
Acute asthmatic relapse  
(hospitalized,  
no corticoids,  
mild hiper-G)

Acute asthmatic  
relapse  
+  
Atelectasia  
G: 400mg/dl  
SQ inslin  
0-75UI/Kg/day  
+corticoids

7 yrs:

7yrs+5mth:

**Diabetic Onset:** Poliuria, polidipsia, nocturnal enuresis, G 512, negative ketones, no acidosis.

**Positive Antibodies:** AntiGAD, antiinsulin, Antitransglutaminase, Antiendomysium, antimicorsomal.

**Normal:** TSH, T 4

**Confirmed Celiac Disease:** age 7 yrs +11mth, X10 antitransglutaminase Ab

## Conclusion:

Close monitoring of iatrogenic hyperglycaemia may facilitate early detection and monitoring of Type 1 diabetes, reducing the incidence of preventable complications.

Diabetic education, including diabetic nutrition may facilitate outpatient compliance and adherence to treatment regimens.

## References:

1. Tratado de endocrinología pediátrica de la adolescencia : J Argente Oliver y cols. 20020: 122-123
2. Escaping insulin dependent diabetes, BMJ . R D Leslie and D A Pyke 1991 May 11; 302(6785): 1103-1104
3. Mode of presentation of juvenile diabetes. Hamilton DV, Mundia SS, Lister J. Br Med J. 1976 ;2(6029):211-2.
4. Natural history of type 1 diabetes. Achenbach P, et al. Diabetes 2005 Dec;54 Suppl 2:S25-31

