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Topic: Pathophysiology of Disorders of Insulin Secretion

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Emerging pitfalls of etiological diagnosis of diabetes in children and adolescents? Analysis of a French cohort of 310 recent-onset cases

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INTRODUCTION & OBJECTIVES

Over the last decades the spectrum of diabetes in youth has widened and even if auto immunity remains the most prevalent etiology, confounding factors such as obesity and overlap with other causes of diabetes types sometimes make a revision of the initial diagnosis necessary.

The aim of the study is to estimate the frequency of diabetes etiologies in youth using a prospective and retrospective systematic approach to diabetes diagnosis

METHODS

- **Patients: All new cases of diabetes 0-19 yrs old,** admitted in our unit (Paris, France) **from January 1st 2010 to December 31st 2012**
- **Méthods: Prospective collection of the data from diagnosis (***Family History , Clinical* (symptoms, age, gender, BMI), *Biological* (ketones, pH, HCO3-, HbA1c), *Immunological* (GAD, IAA, IA2, +/- ZNT8), and *HLA haplotypes* findings at diagnosis), **Retrospective collection of follow up data** (insulin requirement, associated symptoms, genetic testing).
- **Classification of diabetes etiologies** according ISPAD guidelines

RESULTS & CONCLUSIONS

A systematic approach to diabetes etiology in a large hospital-based cohort of youth with newly diagnosed diabetes shows a large diversity of diagnoses with T1D accounting for "only" 70%.
Patients with non autoimmune diabetes are older, mainly female, and half of them are obese at diabetes diagnosis (among them Type 2 diabetes =30%).
Family history of diabetes is interestingly equally highly prevalent in autoimmune and non autoimmune diabetes patients.

Table 1: Patients characteritics at diabetes diagnosis according to the presence of diabetes autoimmunity

	Entire Cohort n= 310	Diabetes Autoimmunity n= 216	No Diabetes Autoimmunity n= 74	*P*
Female (n,%)	142 (45,8)	86 (39,8)	46 (62,2)	.001
Mean Age (yrs)	8,5±4,7 (0-18,3)	7,5±4,7 (0-17,2)	10,1±4,7 (0-17,7)	<.0001
Obesity (n,%)	59/286 (20,6)	23/200 (11,5)	34/71 (47,9)	<.0001
Presentation (n,%)				
Symptoms	**247 (79,7)**	**210 (97,2)**	34 (45,9)	<.0001
DKA	107 (34,5)	100 (46,3)	5 (6,8)	<.0001
Ketonemia without DKA	108 (34,9)	90 (41,7)	16 (21,6)	.0002
Hyperglycemia only	95 (30,6)	26 (12)	**53 (71,6)**	<.0001
Family history of diabetes (n,%)	216/280 (77,1)	105/209 (76,1)	50/63 (79,4)	ns
HbA1c (%)	10,9±3,1 (4,9-19)	11,8±3,1 (6,2-19)	8,9±3,1 (4,6-18,9)	<.0001

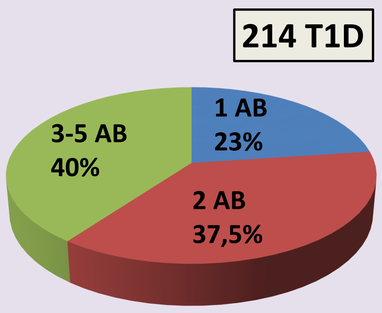
310 Newly diagnosed diabetes (2010-2012)

≥1 Antibody positive among GAD, IAA, IA2, ICA, ZnT8 N = 216 (69.7%)

Auto-antibody negative N=74 (23.9%)

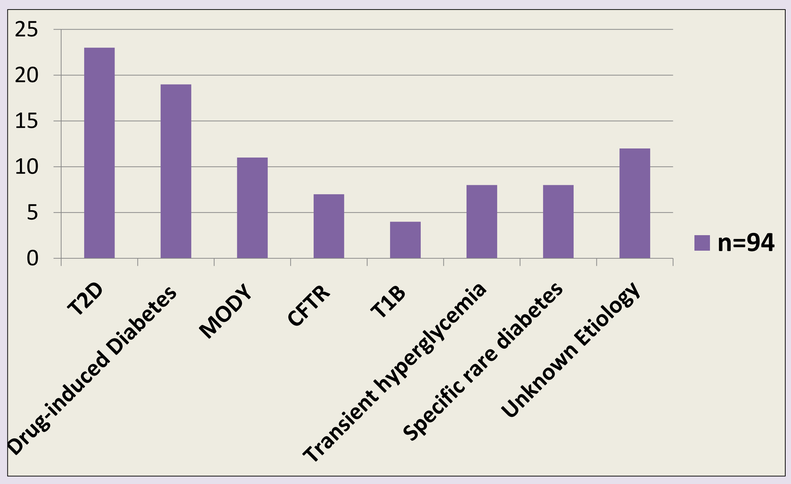
Specific clinical contexts N= 20 (6.4%)

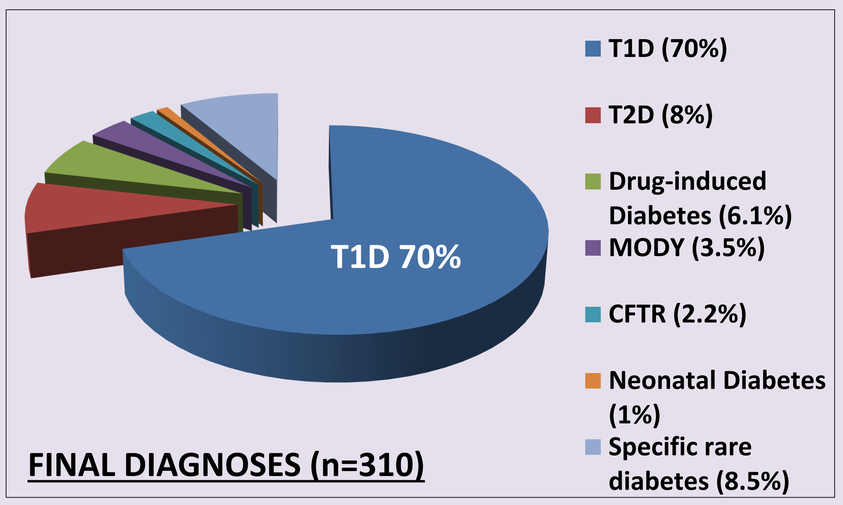
214 T1D



1 IPEX syndrome

1 T2D + IA2





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