

# Familial versus non-familial type-2 diabetes mellitus in children and adolescents: Clinical and Biochemical Data.

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## Introduction

Familial clustering of type-2 diabetes is well-known. In adults, the prevalence of diabetes is higher among patients with diabetic parents.

The Framingham offspring study found that maternal and paternal diabetes conferred equal risk for offspring type-2 diabetes.

### Objective:

We conducted this study to compare the clinical characteristics of children and adolescents with family history of type- 2 diabetes mellitus, in two or more siblings , (FT2DM) with those without a family history of DM (NFT2DM).

## Methods and Materials

This was a cross-sectional descriptive study done at the OPC of HGH , Doha – Qatar between 2009 – 2017 to determine the clinical presentation and prevalence of beta cell autoimmunity (Anti GAD, anti-islet cell and anti-insulin antibodies), thyroid function (Free thyroxine (FT4) and TSH) and anti-thyroid peroxidase antibody (ATPO) and anti-tissue transglutaminase (ATT) in a randomly selected cohort of children and adolescent (< 14 years ) with FT2DM ( n= 13). (table) We compared this group with children with T2DM without family history of DM (NFT21DM (n = 26) at their first presentation at Hamad General Hospital Diabetes Center, Doha, Qatar.

## Conclusions

In this study, FT2DM occurred more in males than females, after 10 years of age, and all presented with hyperglycemia without ketosis. Clinical and subclinical hypothyroidism occurred more in the NFT2DM and they had a higher prevalence of hypercholesterolemia and triglyceridemia.

## Results

Familial Diabetes	NFT2DM	FMT2DM
<b>Prevalence of beta-cell autoimmunity</b>		
Anti-GAD	29.3%*	0%
Islet cell AB	29.4 %	42.85 %*
Insulin AB	58.3 %	50 %
Anti-GAD +ICA2	8.3 %	0%
<b>Prevalence of thyroid disorder</b>		
1-T4 (<11)	11.5 %*	0%
2-TSH (5.6-10)	8%	8.3 %
3-TSH (>10)	6 %	8.3 %
4-TPO (>100)	34.6%	30%
5-TPO (>100 )+ NL TFT	23.1%	20%
6-TPO (>100)+ hypothyroid ( T4 <11 ) or TSH >10)	7.7%*	0%
7-TPO (>100)+ subclinical (TSH 5.6-10)	3.8 %*	0%
<b>Prevalence of celiac disease</b>		
1-ATT IgA>10	8.7 %*	0%
2-ATT Igg >10	0%	0%
<b>Prevalence of acidosis</b>		
1-PH <7.3	2.63%*	0%
2-Hco3 <15	2.6.%*	0%
5-ketosis	34.2%*	0%
<b>Gender</b>		
1-Female	58.9%*	38.46%
2-Male	39.2%	61.54 %*
<b>Age years</b>		
0 to 4	0%	0%
5 to 9	24.14%*	0%
10 to 14	75.68%	100%*
<b>LFT</b>		
1. high ALT	46.34%	46.2%
2. high AST	24.39%*	7.69%
3. high ALP	12.8%	7.69%
<b>Lipid profile</b>		
High LDL	10.26 %	0%
Low HDL (low)	43.589%	55.5%
High Cholesterol	5.13%*	0%
High Triglycerides	17.9 %*	10%

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