

Is Type 1 Diabetes Mellitus Predictable? Investigation of Predictive Markers in Siblings of Proband with Newly Diagnosed Type 1 Diabetes Mellitus



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INTRODUCTION

Type 1 diabetes Mellitus (T1DM) often presents with clear clinical signs after a long-term asymptomatic autoimmune process. This long and silent period has led to an increase in awareness day by day in order to prevent and predict the development of the disease. Among the well-known genetic and environmental risk factors, close relatives of the index cases constitute a population that is quite suitable for predicting and preventing the development of T1DM

AIM

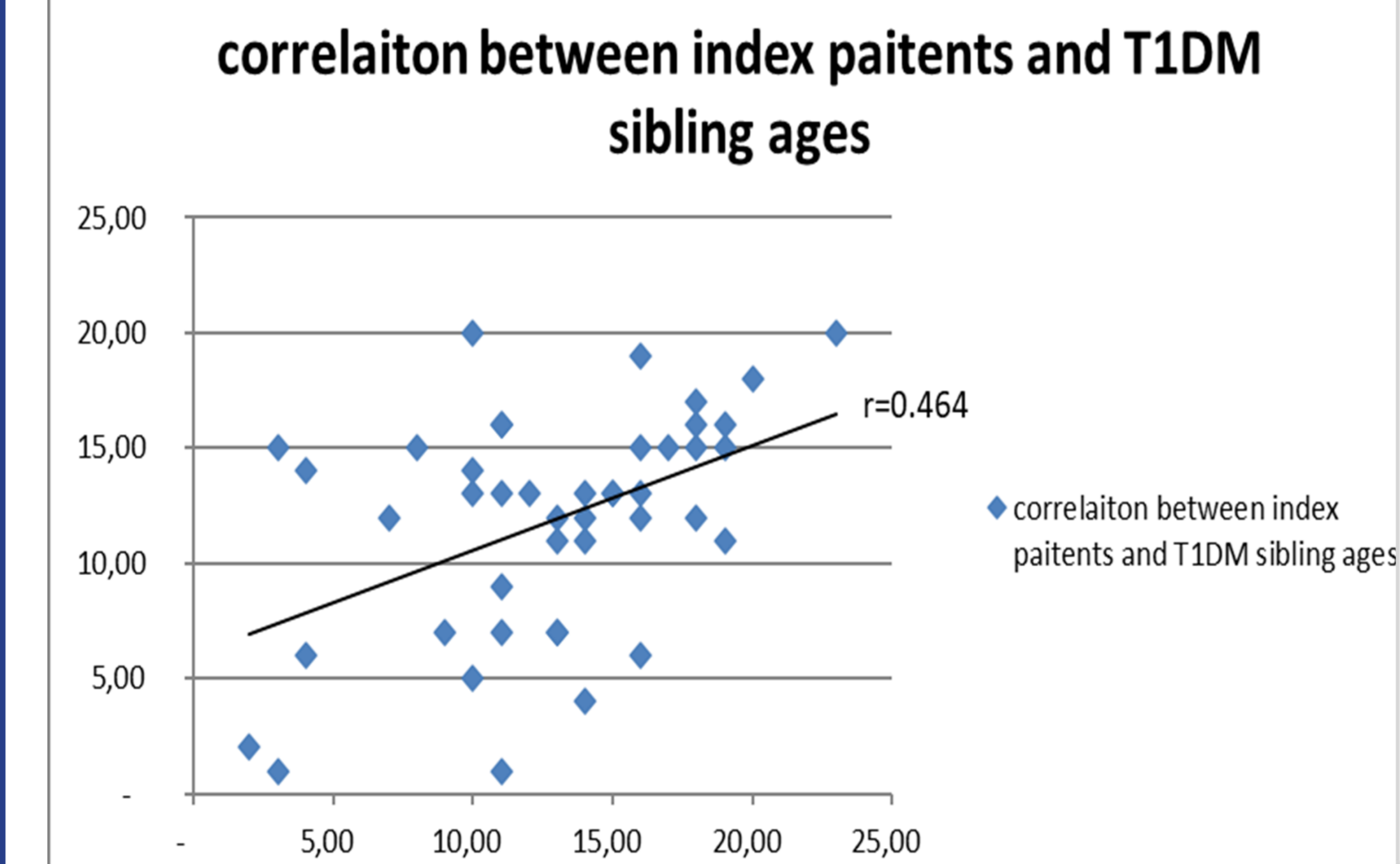
There is an increased risk of T1DM for first-degree relatives of patients that endure into the advanced years. This study focused on the clinical characteristics, serological and biochemical predictive markers that reflect the potential risk for T1DM in the asymptomatic siblings of index patients with newly diagnosed T1DM

METHOD

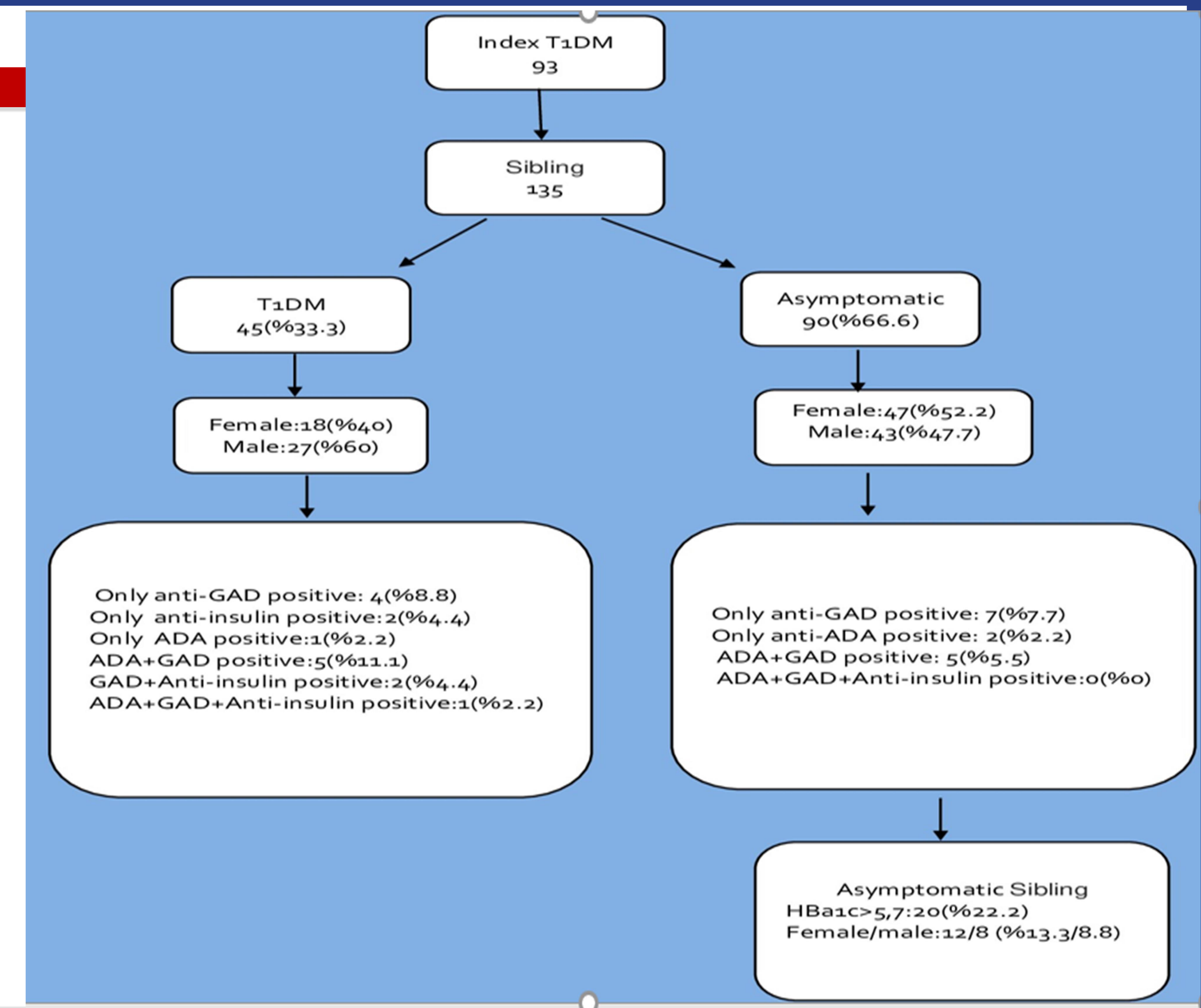
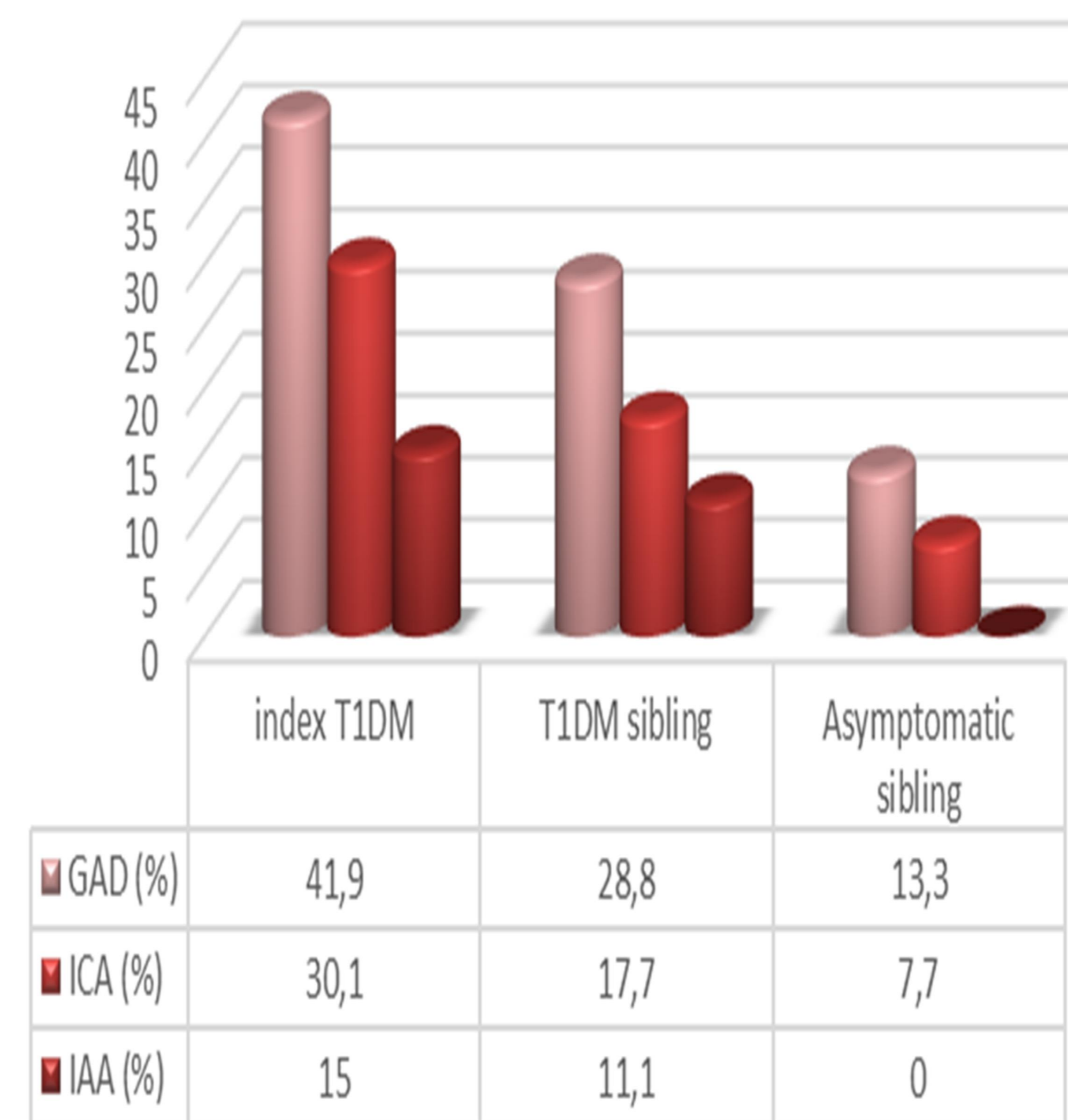
A total of 135 siblings of 93 index cases were included in the study. The siblings consisted of 90 healthy asymptomatic and 45 T1DM children. The following serological and biochemical markers were screened: Islet cell antibodies containing HbA1C; C-peptide; anti-glutamic acid decarboxylase (anti-GAD); anti-insulin (anti-IA) and islet cell antibodies (anti-ICA). Participants were classified into three groups according to their age groups screened: 0-4, 5-10, and ≥ 11 years. Three groups were evaluated in terms of clinical serological and biochemical markers. The following criteria were considered as risk factors: At least one antibody positivity; C-peptide $< 0.4 \mu\text{g/L}$ and HbA1C > 5.7

RESULTS

The seropositivity rates for anti-GAD, anti-ICA and anti-IAA in patients with T1DM (index cases plus siblings of index cases) were 37.68%, 25.36%, and 13.7%, respectively. At least one autoantibody for islet cell antibodies was positive in 14 (%15.55) of the asymptomatic siblings, while HbA1C level was found above 5.7 in 20 (22.2%) of them. C-peptide level was low in two of the asymptomatic siblings



Islet cell antibodies



CONCLUSIONS

This study showed that siblings of index cases had high rates of islet cell antibody positivity and high HbA1C levels, indicating the need for long-term close follow-up in terms of predicting, preventing, and even evaluating potential therapeutic options in siblings of index cases with T1DM.

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- Jennifer J. Couper, Michael J. Haller, Carla J. Greenbaum, Anette-Gabriele Ziegler, Diane K. Wherrett, Mikael Knip, Maria E. Craig. ISPAD Clinical Practice Consensus Guidelines 2018: Stages of type 1 diabetes in children and adolescents .First published: 26 July 2018 <https://doi.org/10.1111/pedi.12734>

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