

Characteristics of children and Adolescents with Type 2 Diabetes Mellitus at the Queen Silvia Children's Hospital, Sweden

Iulian Preda^{1,*} and Gun Forsander^{1,2}

¹ The Queen Silvia Children's Hospital, Sahlgrenska University Hospital, 41685 Gothenburg, Sweden; research.icu@outlook.com

² Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, 40530 Gothenburg, Sweden

* Corresponding author: iulian.preda@vgregion.se

Submitted: 20 October 2020, accepted: 22 October 2020, published: 16 November 2020

Keywords: type 2 diabetes mellitus; children; obesity

How to cite: Preda, I.; Forsander, G. Characteristics of children and Adolescents with Type 2 Diabetes Mellitus at the Queen Silvia Children's Hospital, Sweden *Cent. Eur. Ann. Clin. Res.* 2020, 2(1), 7; doi:[10.35995/ceacr2010007](https://doi.org/10.35995/ceacr2010007).

© 2020 Copyright by the authors. Licensed as an open access article using a CC BY 4.0 license.



Background and Aims

Although obesity is increasingly common in Sweden as in many other western countries, the number of adolescents with type 2 diabetes is still relatively low. In 2019, there were 7453 patients younger than 18 years registered in the Swedish National Pediatric Diabetes Registry (SWEDIABKIDS) of whom 81 individuals were diagnosed with type 2 diabetes. The aim of this presentation is to describe the characteristics of children and adolescents with type 2 diabetes at our clinic at diagnosis and the findings at one year and nine months follow up (range 2 months–5.5 years).

Materials and Methods

Eligible for the study were patients with type 2 diabetes who were younger than 18 years in August 2019 and living within the catchment area, identified in the Swedish National Pediatric Diabetes Registry, SWEDIABKIDS, which covers >99% of all patients in Sweden [1]. Our hospital is the second largest pediatric diabetes center in Sweden with >550 patients aged 0–17.99 years. The clinic has been a Sweet Centre of Reference since 2011 and cares for around 75 newly diagnosed children every year.

Results

Eight patients with type 2 diabetes were identified (five girls, three boys) aged between 10 and 17 years at diagnosis. All were obese (BMI range 29.5 to 49.9) and had strong heredity for type 2 diabetes, obesity, or hypertension. Four had heredity for hyperlipidemia and three for lethal cardiovascular accidents. All were born in due time and all but one had normal birth weight. One boy had attention deficit and one girl had expressive language disorder. Two girls

had polycystic ovarian syndrome. All had increased insulin levels (range 34–500 mIE/L, normal value < 20 mIE/L), acanthosis, and none of the patients had islets autoantibodies.

At follow-up, three patients had hypertonia and one had proteinuria. All patients were treated with metformin, three of them were also treated with semaglutide, and one had, in addition, insulin glargine. All were equipped with isCGM (FreeStyle Libre) and all but one attained the target HbA1C level (<48 mmol/mol, <6.5%). Gastric bypass surgery has been discussed with most patients and one girl was operated on shortly after her 18th birthday with good results.

All patients were from low-income families, seven of whom were from minority ethnic groups.

Conclusions

Children and adolescents with type 2 diabetes have a greater socioeconomic burden and many risk factors for cardiovascular disease. It is therefore important to identify the patients at risk as early as possible. Probably, there are still some overweight and obese patients who are not yet diagnosed for type 2 diabetes. All patients and families need strong and persistent encouragement from a professional diabetes team in order to adhere to the recommended treatment regimen and maintain the targets for metabolic control, i.e., HbA1C < 48 mmol/mol, (<6.5%).

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Reference

1. Available online: https://www.ndr.nu/pdfs/Yearreport_Swediabkids_2018_Eng.pdf (accessed on 22 October 2020).