



بسم الله الرحمن الرحيم

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بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى

مسئولية عن محتوى هذه الرسالة.

ملاحظات: لا يوجد





**Evaluation of the Current International
Registry Update for Children and
Adolescents with Diabetes Mellitus
Following up in Diabetes Clinic,
Pediatric Hospital, Ain Shams University**

Thesis

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in Pediatrics*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالَ

سَبَّحَانَكَ لَا إِلَهَ إِلَّا مَا عَلَّمْتَنَا إِنَّكَ أَنْتَ
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List of Abbreviations

Abb.	Full term
A1C	Glycated hemoglobin
ADA	American Diabetes Association
ALT	Alanine aminotransferase
AST	Aspartate aminotransferase
BG	Blood glucose
BMI	Body mass index
CBC	Complete Blood Count
SMBG	Self-Monitoring of Blood Glucose
CGMS	Continuous glucose monitoring system
CMV	Cytomegalovirus
CSII	Continuous subcutaneous insulin infusion
DHC	Diabetes healthcare
DKA	Diabetic ketoacidosis
DM	Diabetes mellitus
FDA	Food and Drug Administration
GAD	Glutamic acid decarboxylase
IA2	Protein tyrosine phosphatase
IAA	insulin autoantibody
ZnT8	Anti-Zinc Transporter
GWAS	Genome-wide association studies
HbA1c	Hemoglobin A1c
HDL	High-density lipoprotein
LDL	Low-density lipoprotein
TG	Triglyceride
HER	Electronic health record
HHS	Hyperosmolar hyperglycemic state
IVGTT	Intravenous glucose tolerance test
IZS	Insulin zinc suspension.
MDI	Multiple daily insulin injections

List of Abbreviations Cont...

Abb.	Full term
MENA.....	Middle East and North Africa
MU	Meaningful Use
NDR.....	National Diabetes Register
NPH.....	Neutral Protamine Hagedorn
RWD	Real-world data
T1DM.....	Type 1 diabetes mellitus
TSH.....	Thyroid Stimulating Hormone
TEDDY	The Environmental Determinants of Diabetes in the Young
WHO	World Health Organization

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Abstract

Background: Diabetes team should have the access for receiving continuous feedback for the health care service to help successful improvement. Health professionals need to continuously work to improve the quality of pediatric diabetes care to reduce the risk of acute and chronic complications.

Objective: To evaluate the current international SWEET registry update for the children and adolescents following regularly at Pediatric and Adolescents Diabetes Unit (PADU) during a period of six months and updating the existing electronic medical record (Database) in (PADU) to provide measures to improve patients outcome regarding both acute and chronic complications.

Patients and Methods: The present study is a prospective follow up study performed on 385 patients with diabetes mellitus type1, with a mean age 11.79 ± 4.16 years. All patient with diabetes mellitus type1 visiting diabetes clinic (PADU) were included in the study after obtaining an informed consent.

Results:. Patients with longer diabetes duration have significant higher insulin dose, more attacks of DKA and less attacks of hypoglycemia comparing to those with shorter duration. Patients with poor glycemic control have more attacks of DKA (62 patients vs 58 patients), (p-value=0.046), and less attacks of hypoglycemia (25 patients vs 65 patients), compared to properly controlled patients (p-value=0.000). Patients on insulin pump show significant improvement of their HbA1c (11% vs 7.3%) (p –value=0.000), cholesterol (173 mg/dl vs 139.8 mg/dl) (p-value= 0.006) and SMBG (2.7 times vs 4.6 times)(p-value= 0.000), compared to patients on multiple daily injections(MDIs).

Conclusion: Diabetes care is the cornerstone for proper glycemic control and prevention of long term complications. This study showed the value of a registry system to enable monitoring of patients over many years. The study could be an important step in the development of a national registry system for diabetes in Egypt.

Keywords: Type 1 diabetes mellitus, multiple daily insulin injections

INTRODUCTION

Type 1 diabetes mellitus (T1DM) is one of the most common chronic childhood conditions and its incidence is rising worldwide among pre-school aged children. This condition is now mostly managed using flexible intensive insulin regimens, which involve multiple daily tasks (e.g. regular blood glucose monitoring, carbohydrate counting, calculating and administering insulin) and may present different issues and challenges to conventional regimens based on fixed schedules and insulin doses. The physiological, cognitive, behavioral and socio-emotional issues at this developmental stage make diabetes management challenging (*Kimbell et al., 2021*).

The glycemic targets for young children younger than 6 years with type 1 diabetes (T1D) have traditionally been set higher than older children and adolescents primarily due to concerns regarding hypoglycemia. However, newer recommendations have stressed the importance of intensive management even for the youngest children with T1D and hemoglobin A1c (HbA1c) goals <7.0% are now the same across all pediatric ages (*ADA, 2022a*).

Microvascular complications of diabetes are those long-term complications that affect small blood vessels. These typically include retinopathy, nephropathy, and neuropathy (*Zimmerman and Robert, 2016*). The kidney is one of the major target organs (*Webster et al., 2017*).