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First Clinical Manifestations of Type 1 Diabetes Mellitus among Hospitalized Children in Yazd, Iran: A Single-Center Experience

The incidence of type 1 diabetes (T1D) as the most common endocrine disease in children is rising by 3–5% each year worldwide [1]. Childhood diabetes usually presents with polyuria and polydipsia, accompanied by weakness, nausea, and blurred vision. However, the onset of symptoms may be sudden and can occur with diabetic ketoacidosis (DKA) [2]. Our study aimed to investigate the first manifestations of diabetes in children hospitalized in the Emergency Department and Pediatric Ward of Shahid Sadoughi Hospital in Yazd, Iran, for ten years.

This study was a 10-year study of the records of children referred to Shahid Sadoughi Hospital from 2010 to 2020 when the diagnosis of T1D was made for the first time. Census was the sampling method, and all the patients under 18 years who had first been admitted with a diagnosis of T1D were included. If the final diagnosis was other than T1D, the patient was excluded from the research. The data collection tool was a questionnaire comprising information such as age, sex, early manifestations of diabetes, and duration of the symptoms until diagnosis. This study was approved by ethics committee of Shahid Sadoughi University of Medical Sciences of Yazd, Iran (IR.SSU. MEDICINE.REC.1399.277).

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Table 1. Patient Characteristics at the Time of Type 1 Diabetes Diagnosis

Variables	
Age (year)	8.5 (0.5–16)
Girls	101 (45.9%)
Duration to diagnosis (days)	20 (5–65)
DKA at diagnosis (yes)	80 (40%)

Data are presented as mean (range) or number (percentage).
DKA — diabetes ketoacidosis

Out of 220 studied patients, 45.9% were girls, and 54.1% were boys. The patient characteristics at the time of type 1 diabetes diagnosis are set out in Table 1.

It should be noted that 70% of the subjects were over six years old, while only about 2% were younger than one year. The mean age of the participants was 8.5 years. About 66% of patients were diagnosed within one week to a month after the onset of symptoms, and only 2% over two months. The most common first clinical manifestations were polydipsia, polyuria, and enuresis, while nausea and vomiting were infrequent. Furthermore, 40% of the participants showed DKA. The Chi-Square test used to analyze the data revealed the prevalence of polydipsia and polyuria as the significantly most common manifestations in girls (p = 0.02); however, no significant relationship was recognized between these clinical symptoms and age or time of diagnosis. No significant relationship was identified between DKA and age or sex. Nausea and

vomiting were the least common clinical manifestations of diabetes onset at all ages. About 16.8% of patients had both symptoms of polydipsia, polyuria, and DKA. There was no significant relationship between gender and time of diagnosis (p = 0.08). However, there was a significant relationship between age and the time of diagnosis (p = 0.02).

One study in Nigeria, reported that the most common clinical manifestations of T1D were polyuria and polydipsia, which is consistent with our findings [3]. Ugege's [3] and Shaultout's [4] studies found no association between clinical manifestations and gender. The results of our study indicated that with increasing age, the incidence of DKA decreases in children. Other studies have also reported that younger children have a notably greater chance of developing DKA than older children [4, 5]. Based on this study's findings, polydipsia, polyuria, and nocturia are the most common early clinical symptoms regardless of age and sex. This study's limitations include cross-sectional and single-center design, and the use of patient records information.

Conflict of interest

None declared.

REFERENCES

1. Dayal D, Gupta B, Gupta S, et al. Type 1 diabetes in children: a scientometric assessment of Indian research output from 1990 to 2019. International Journal of Diabetes in Developing Countries. 2021; 41(3): 404–411, doi: 10.1007/s13410-021-00919-7.
2. Umar U. Pattern of presentation of Type 1 diabetic patients in Kano, Nigeria. Nigerian Journal of Basic and Clinical Sciences. 2016; 13(2): 85, doi: 10.4103/0331-8540.187361.
3. Ugege O, Ibitoye P, Jiya N. Childhood diabetes mellitus in sokoto, north-western Nigeria: A ten year review. Sahel Medical Journal. 2013; 16(3): 97, doi: 10.4103/1118-8561.121910.
4. Shaltout AA, Channanath AM, Thanaraj TA, et al. Ketoacidosis at first presentation of type 1 diabetes mellitus among children: a study from Kuwait. Sci Rep. 2016; 6: 27519, doi: 10.1038/srep27519, indexed in Pubmed: 27328757.
5. Segerer H, Wurm M, Grimsmann JM, et al. Diabetic Ketoacidosis at Manifestation of Type 1 Diabetes in Childhood and Adolescence—Incidence and Risk Factors. Dtsch Arztebl Int. 2021; 118(22): 367–372, doi: 10.3238/arztebl.m2021.0133, indexed in Pubmed: 34250891.